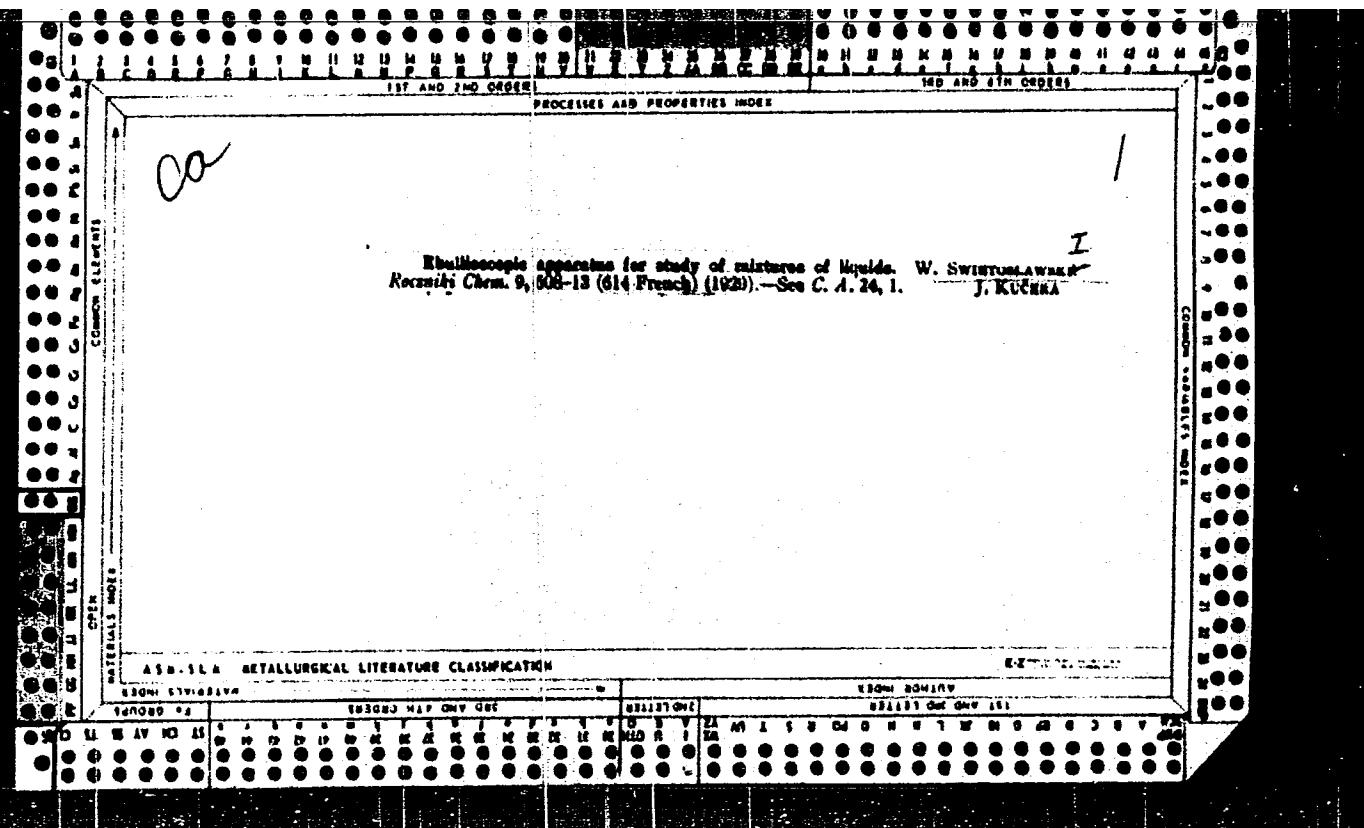


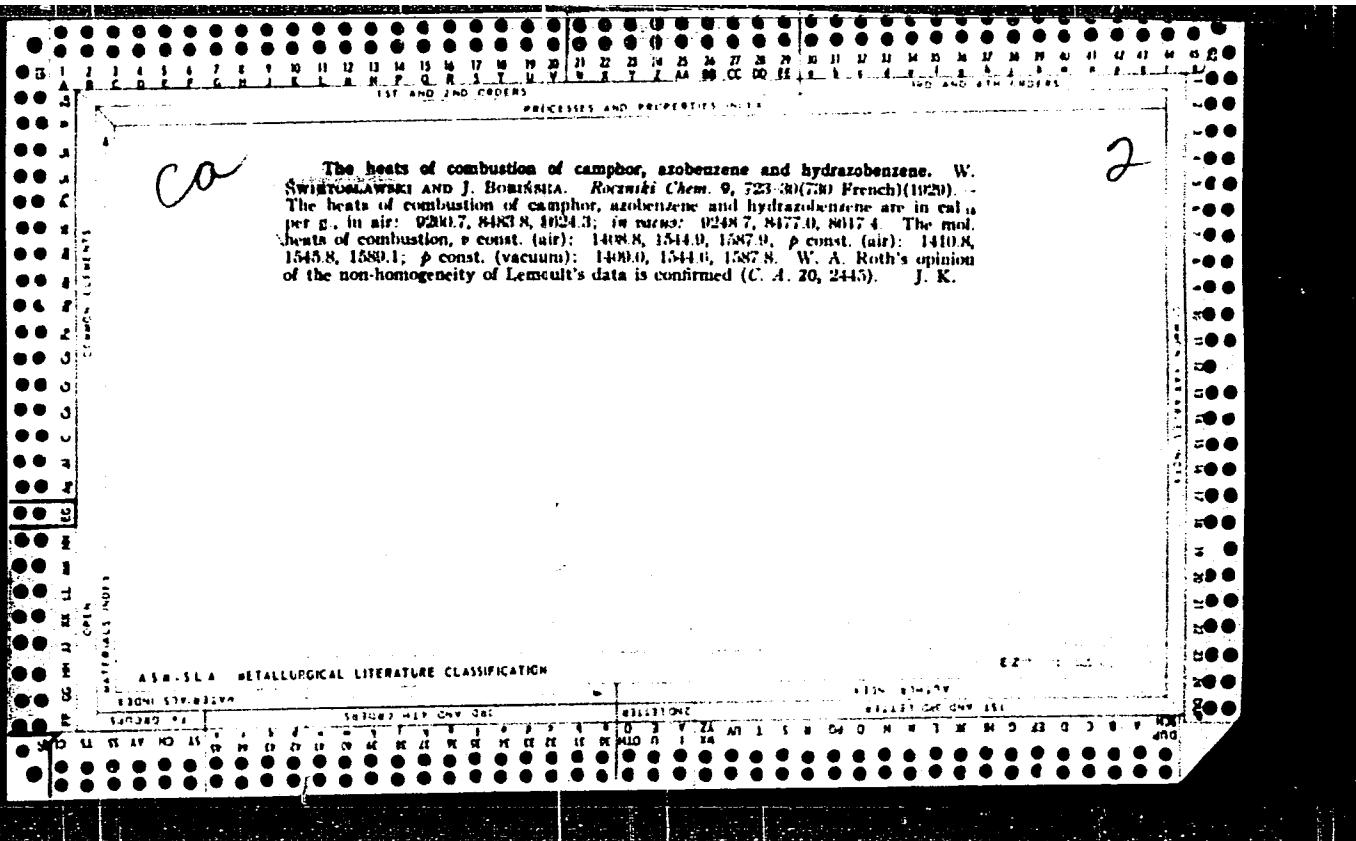
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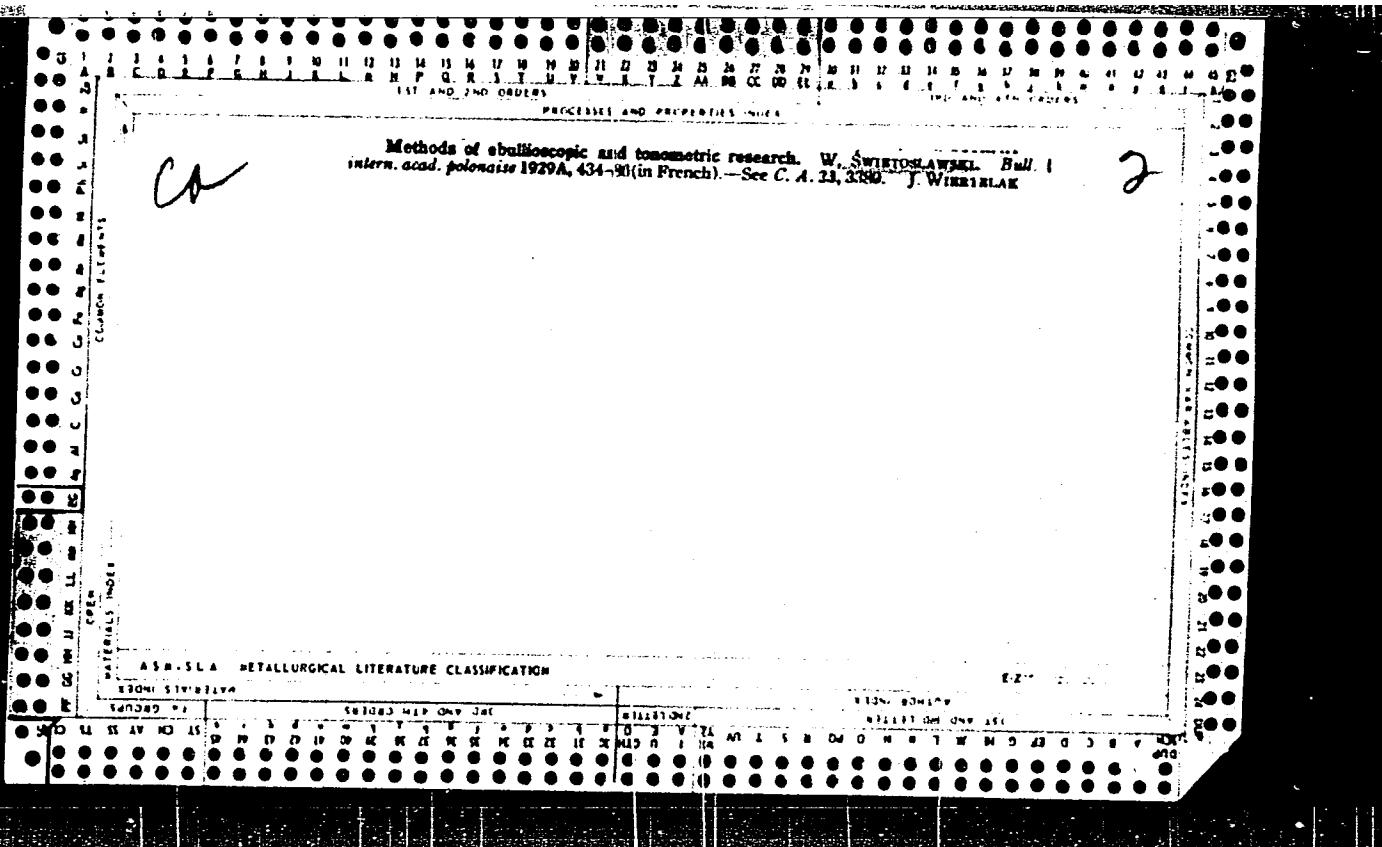


CA

Briquetting of coke and semicoke powders with coal as the binder. II. W. SWIĘTOŁAWSKI, B. RÓGA AND M. CUDRZY. *Premyl Chem.*, 13, 405-72 (1920); cf. C. I. 23, 2013. The higher the coking properties of coal the better it acts as a binder. The nature of the semicoke, depending on whether it came from a coking or a non-coking coal, plays a minor but significant part in briquetting. A min. of 30% coal dust is necessary to produce mechanically strong briquets. The temp. to which the mixt. of coal dust with coke or semicoke dust must be heated before pressing varies between 380° and 440°, depending on the coal dust used as the binder. A pressure of 200-300 kg /sq. cm. is sufficient to produce good briquets. A résumé of over 37 patents on briquetting compiled from international sources is given. A. C. Z.

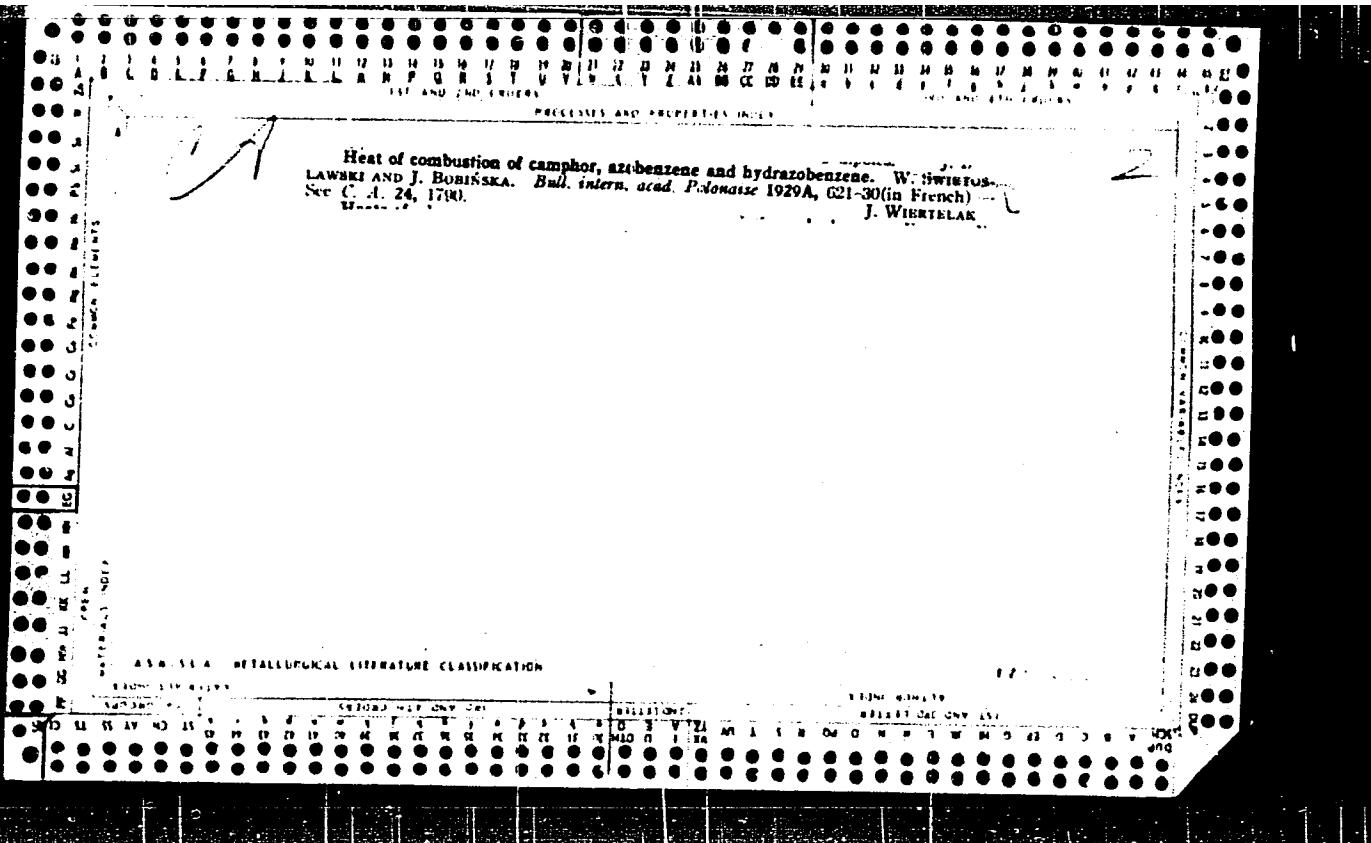
ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

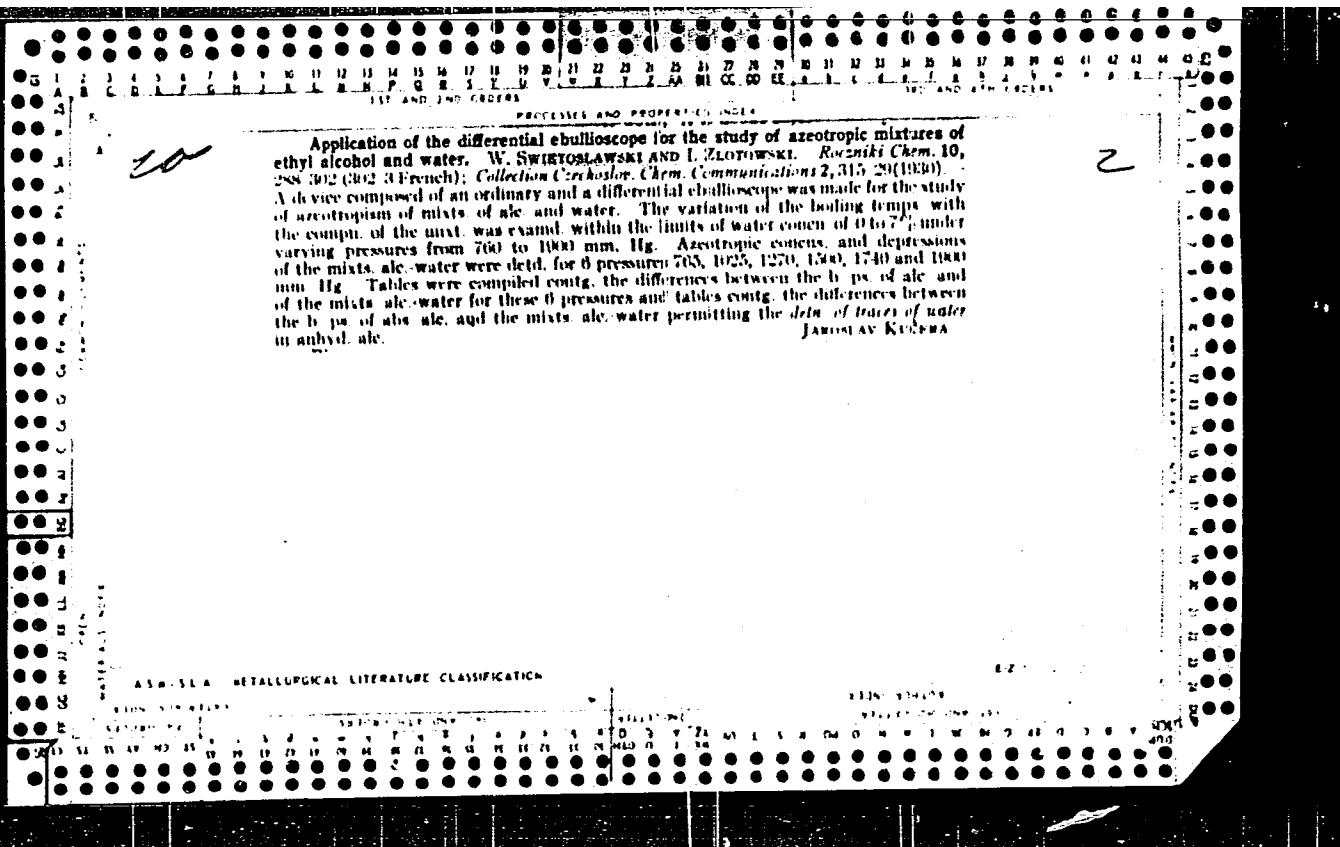
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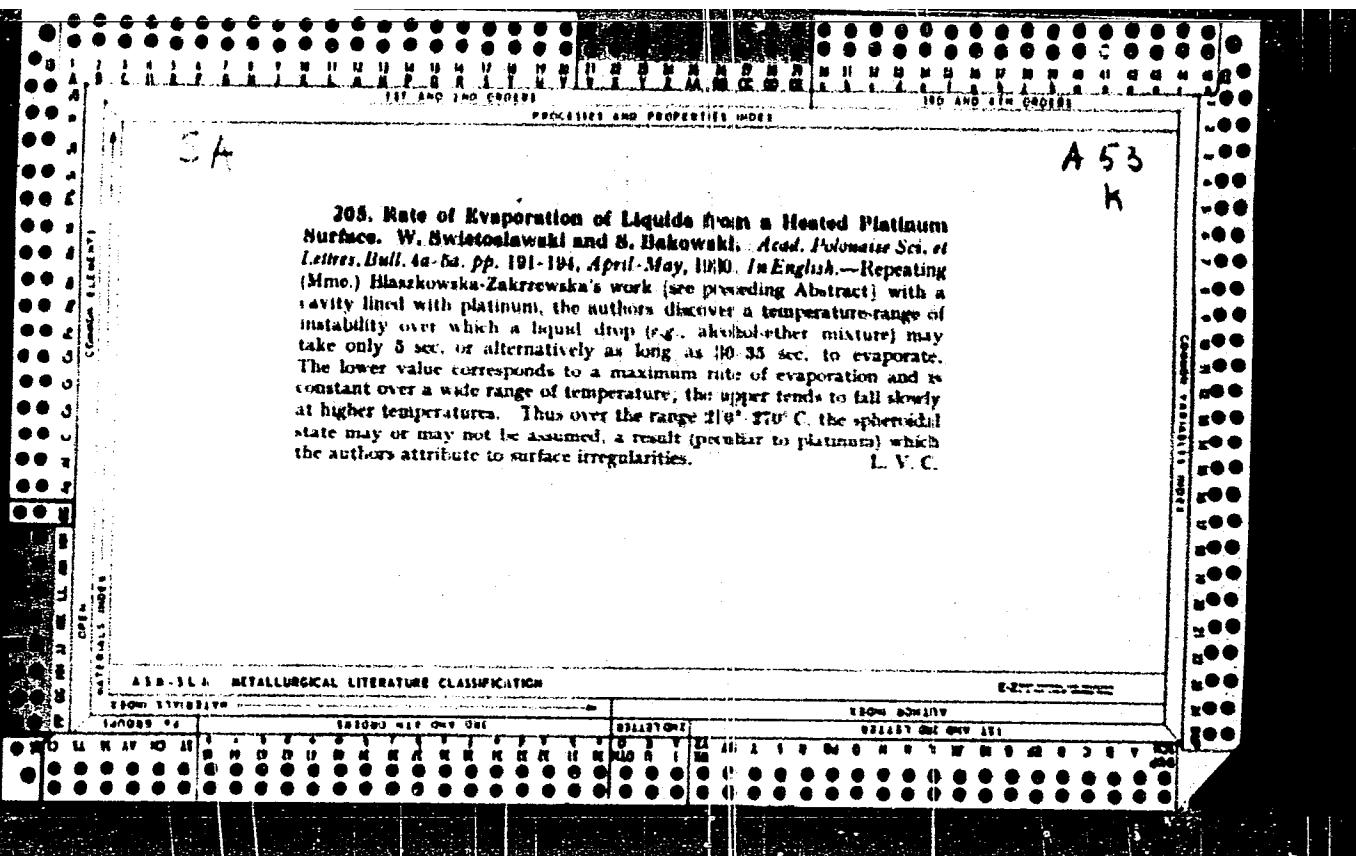


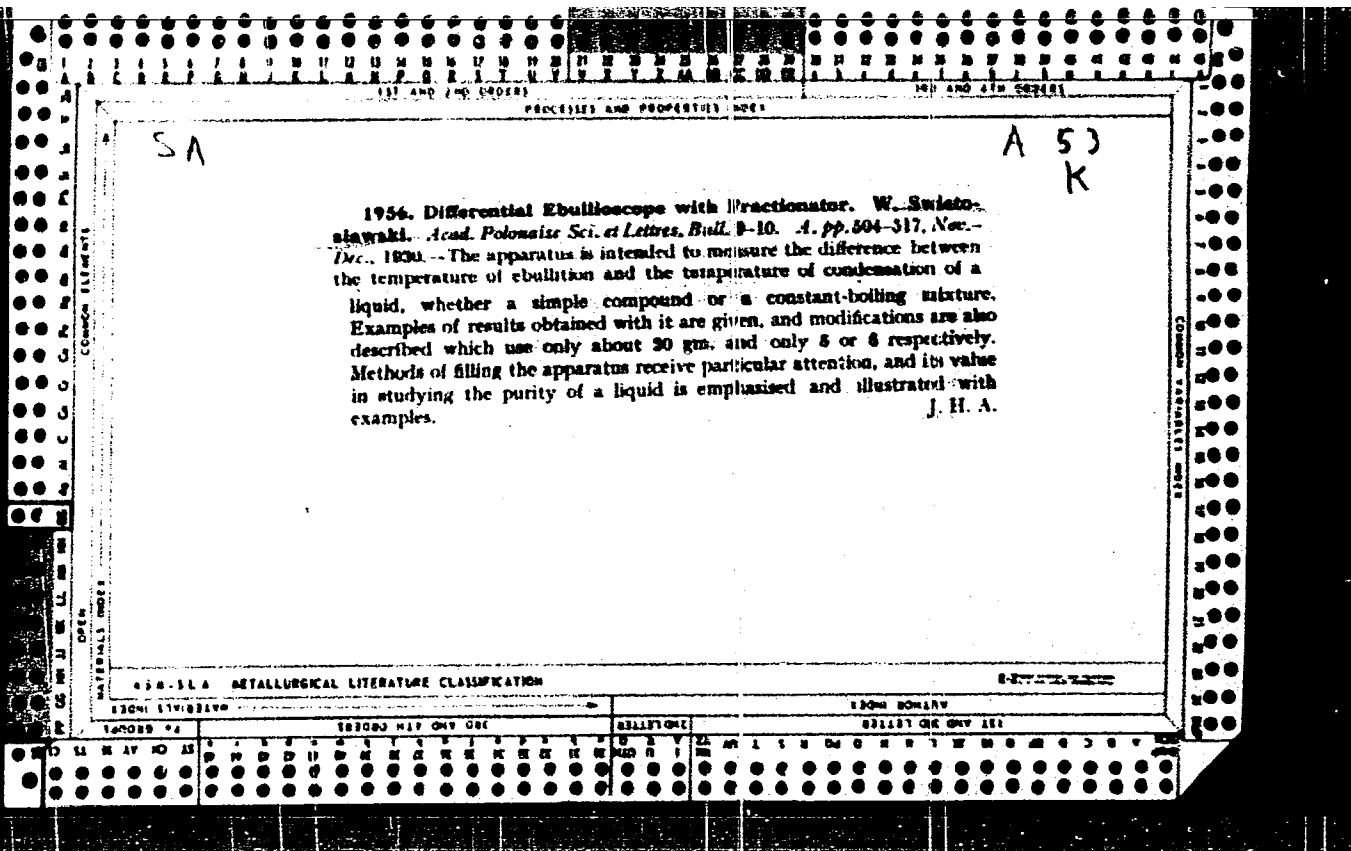
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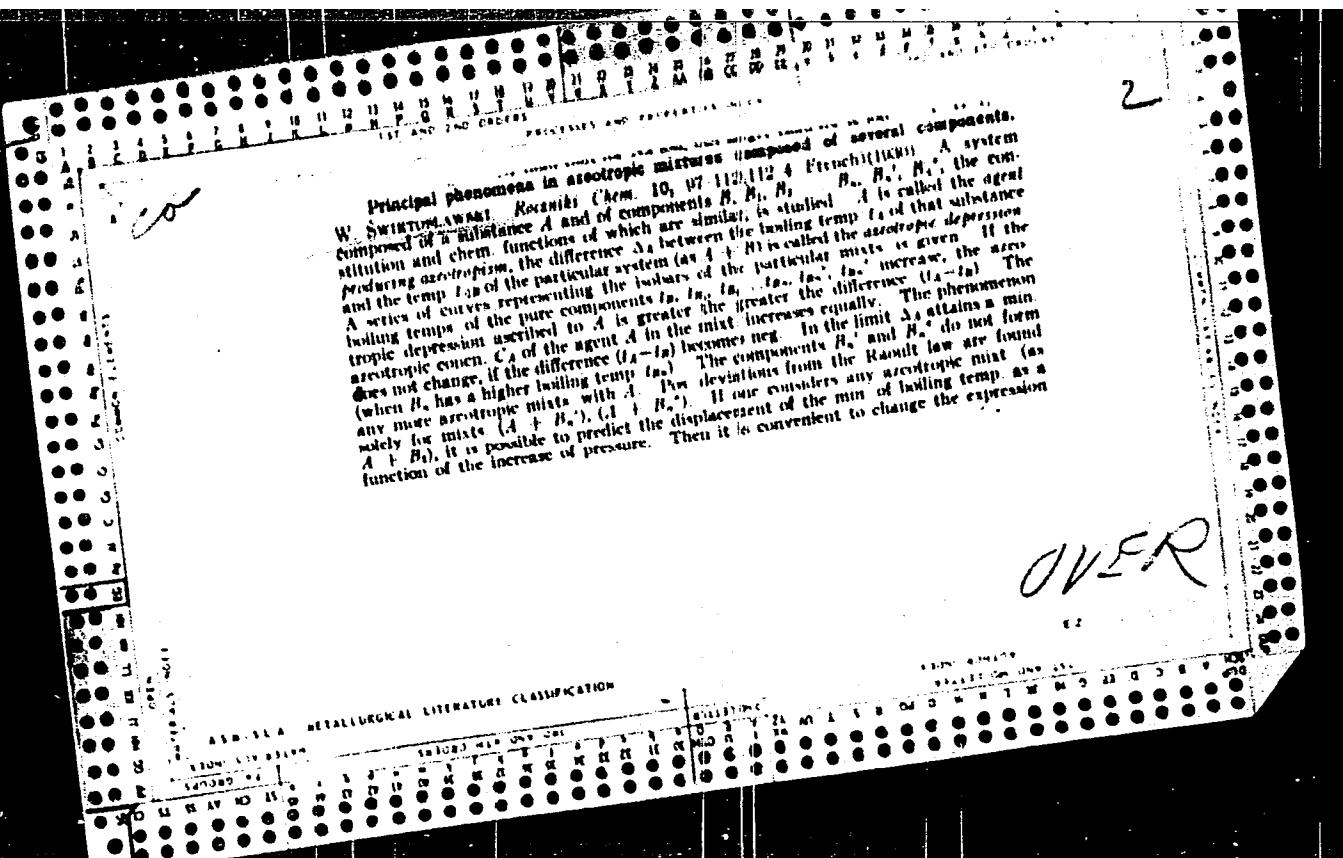
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*Ca**21*

Mechanical resistance of cokes from Upper Silesia. W. SIEGRIST, AWARE AND M. CIEORAZY. *Przemysl Chem.* 14, 193-204 (1930).—The usual drum test for the strength of coke was modified by periodically removing from the drum the smaller lumps produced by grinding, detg. the proportions of lumps (1) greater than 40 mm., (2) between 40 and 10 mm. and (3) smaller than 10 mm. The results are evaluated numerically by plotting the % of each size of lumps against the no. of revolutions of the drum, and measuring the areas under the curves. This method and the "shatter test" were applied to cokes from several Upper Silesian plants of various oven designs. The 2 methods give concordant results. The modified drum test is, however, the more sensitive one for friable and easily crushable cokes, and is the better suited for cokes of Upper Silesia.

A. C. ZACSLIN

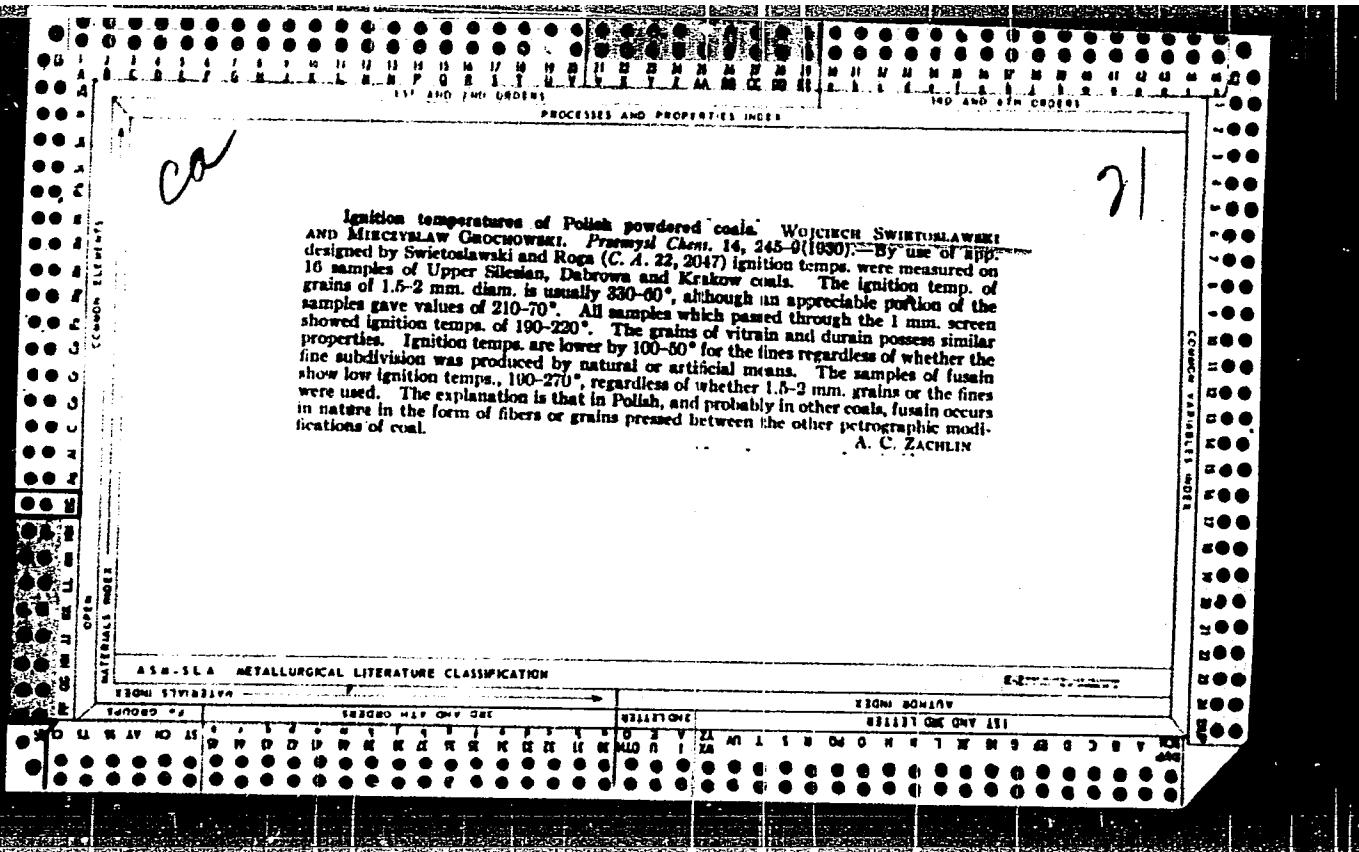
ASM-SEA METALLURGICAL LITERATURE CLASSIFICATION

ECONOMIC LEVELS

TECHNICAL LEVELS

Ignition temperatures of Polish powdered coals. WOJCIECH SWIĘTOŁAWSKI AND MIECZYSŁAW GŁOCHOWSKI. *Przegrod. Chem.*, 14, 245-9 (1930).—By use of apparatus designed by Świętołaski and Roga (C. A. 22, 2047) ignition temps. were measured on 16 samples of Upper Silesian, Dąbrowska and Krakow coals. The ignition temp. of grains of 1.5-2 mm. diam. is usually 330-60°, although an appreciable portion of the samples gave values of 210-70°. All samples which passed through the 1 mm. screen showed ignition temps. of 190-220°. The grains of vitrinite and durain possess similar properties. Ignition temps. are lower by 100-50° for the fines regardless of whether the fine subdivision was produced by natural or artificial means. The samples of fusain show low ignition temps., 100-270°, regardless of whether 1.5-2 mm. grains or the fines were used. The explanation is that in Polish, and probably in other coals, fusain occurs in nature in the form of fibers or grains pressed between the other petrographic modifications of coal.

A. C. ZACHLIN

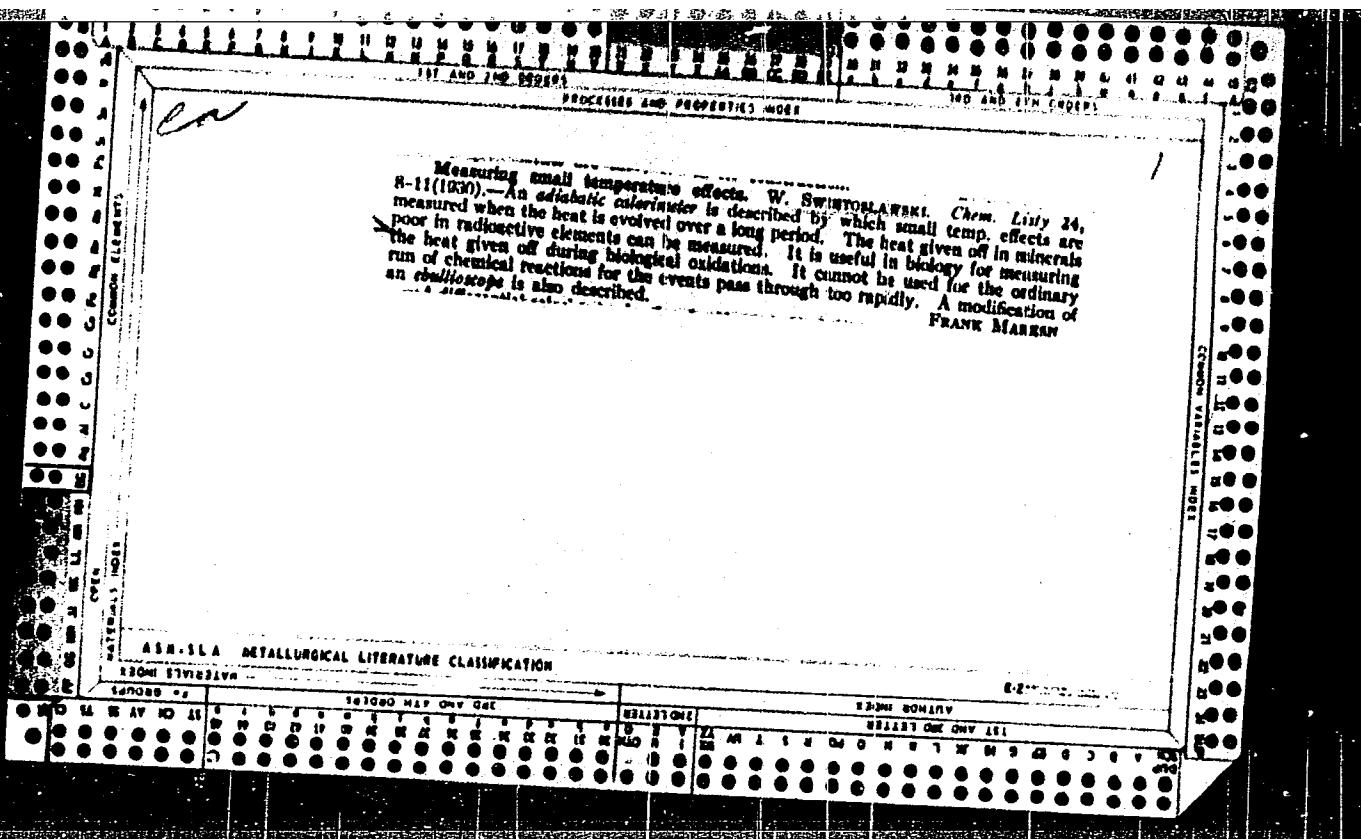


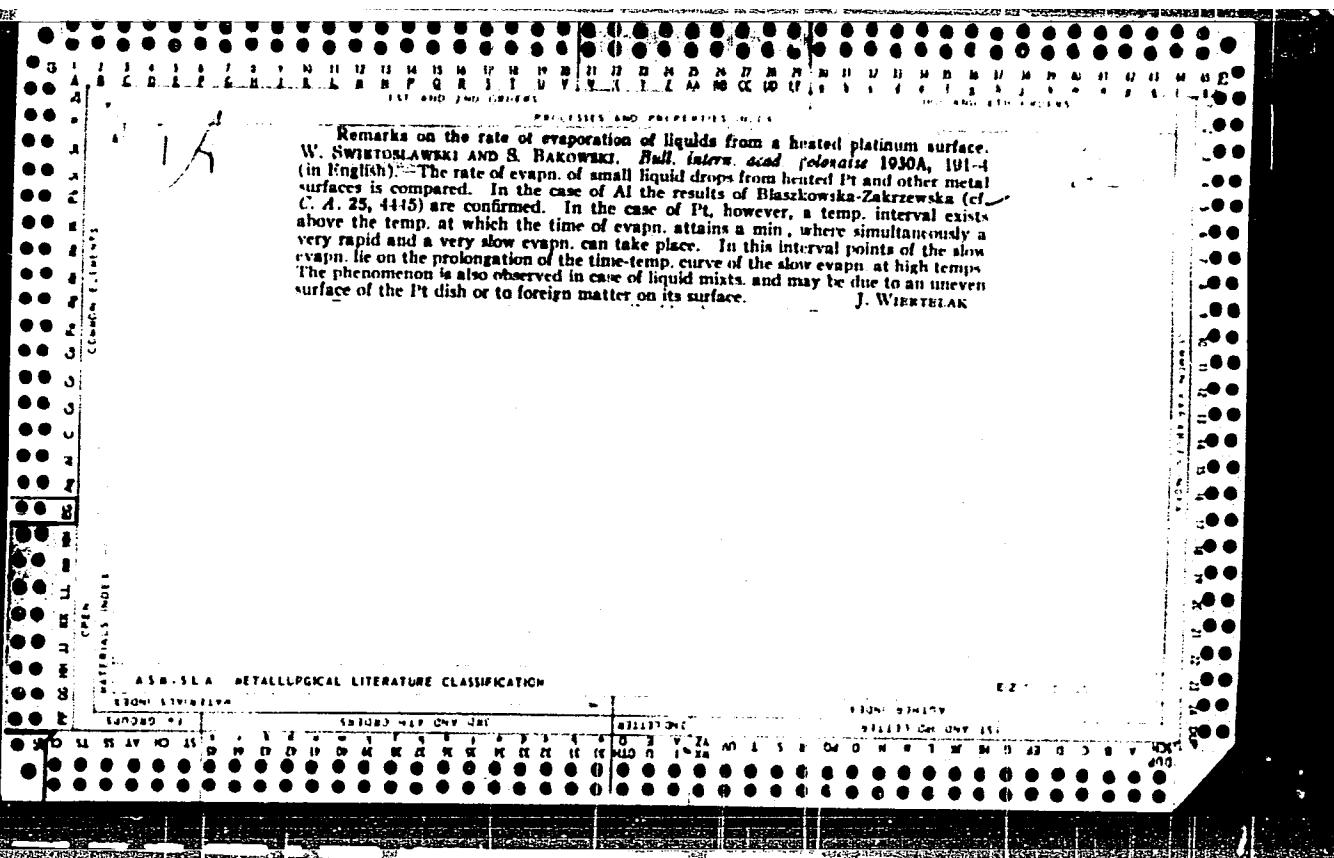
Physicochemical researches on alcoholic mixtures. I. Introduction. Wojciech SwiatoÅawski. *Przegl. Chem.* 14, 337-8 (1930).—Compr., by vol., sp. gr. and acidity of mixts. discussed in succeeding instalments are given. **II. The phenomena of azeotropy in polycomponent mixtures.** *Ibid* 339-45.—Azeotropic mixts. of 2 and 3 components are considered theoretically. The component A that produces an azeotropic mixt. with other components B and B₁ is called an *azeotropizing agent*. The difference between the b. p. of component A and the b. p. of the mixt. producing max. vapor pressure is called the azeotropic lowering of the boiling temp. with respect to the component A (in the case of pos. azeotropy). In a series of binary mixts. of an azeotropizing agent A with B, B₁, B₂, . . . etc. (e. g., hydrocarbons) the concn. of A is greater the smaller the azeotropic lowering of the b. p. In such a series no ternary azeotropic mixt. such as B + B₁ + A is formed, but a series of binary azeotropic mixts. such as A + B, A + B₁ + B₂, . . . etc. The losses of liquid, in general, were greater the higher the vapor pressure. **VIII. Dependence of the temperature of clouding of the mixtures on the amount of added water.** W. SWIATOÅAWSKI, J. PFANHAUSER AND B. BAKOWSKI. *Ibid* 497-501.—Clouding and sepn. into 2 phases of the alcoholic fuel mixts. was studied in the relation of temp. to the amt. of water added within the temp. limits of -25° to +30°. A modified form of Alexeyev app. was used. The mixt. PA became turbid the most easily (-18°). Temps. at which the other mixts. sepd. into 2 phases varied from -22.5° to -75°. **IX. Flash points, and burning temperatures of alcoholic fuel mixtures.** W. SWIATOÅAWSKI AND B. KARPINSKI. *Ibid* 501-3.—Aehel's app. was used.

ASE-SEA METALLURGICAL LITERATURE CLASSIFICATION

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Preparation of sulfonic derivatives of naphthoquinonechlorodimines and naphthoquinonaedchlorodimines. W. SWIĘTOSŁAWSKI, A. PILIT AND F. KRACKIKWICZE. *Bud. intern. Acad. Polonaise* 1931, NO. 2A, 148-57 (1931) - See C. A. 25, 3331. G.G.
This article is available online at www.sciencedirect.com/science/article/pii/S000711020870001X

Intern. Acad. Polonica 1931, No. 2A, 148-57 (1931) - See C. A. 25, 3331. G. G.
Thioquiole. LEONARD A. WARREN AND SAMUEL SMILES. *J. Chem. Soc.* 1931, 1192-6. - Thio derivs. of $2\text{-C}_6\text{H}_5\text{OH}$ of the general type $1,2\text{-C}_6\text{H}_5\text{H}_2\text{SAR}(\text{HO})\text{SR}$ (I) are converted by dil. HNO_3 into quinononitroles (II), $1,1,2\text{-C}_6\text{H}_5\text{H}_2\text{SAR}(\text{NO}_2)_2\text{O}$. Under the action of heat in solvents the II decom., yielding complex mixts.; the chief process involved is usually that of hydrolysis, leading to HNO_3 and the thioquinone (III), $1,1,2\text{-ArS}(\text{HO})\text{C}_6\text{H}_5\text{O}$; these have not been isolated, the disulfides resulting from oxidation of the thiols liberated by fission of the III being obtained instead. Concurrently with hydrolysis, migration of the NO_2 group may occur, but the resulting NO_2 derivs. of I have been obtained in only 3 cases. A third type of decompn. (in presence of alkali) involves the removal of the thiouryl group, leaving $1,2\text{-O}_2\text{NC}_6\text{H}_5\text{OH}$. *2-Naphthyl 1-nitro-2-keto-1,2-dihydro-1-naphthyl sulfide* (II, Ar = $2\text{-C}_6\text{H}_5$), m. 110° (decompn.), results from the sulfide (I, Ar = $2\text{-C}_6\text{H}_5$) and 10% HNO_3 in AcOH ; warming in AcOH at 80° gives $(2\text{-C}_6\text{H}_5)_2\text{N}$; RIOH-NaOH gives $1,2\text{-O}_2\text{NC}_6\text{H}_5\text{OH}$. The ρ -tolyl deriv. (II, Ar = $\rho\text{-C}_6\text{H}_4\text{H}_5$), m. 112° (decompn.); the *o*-nitrophenyl deriv. (II, Ar = $\text{o}-\text{O}_2\text{N}\text{C}_6\text{H}_4\text{H}_5$), m. 105° (decompn.); warm AcOH decompns. this, giving *o*-nitrophenyl *2-nitro-2-hydroxy-1-naphthyl sulfide* (IV), yellow, m. 102°. The ρ -nitrophenyl deriv., m. 110° (decompn.); warm AcOH gives the ρ -isomer of IV, yellow, m. 187°. *1-Nitro-2-hydroxy-2-keto-1,2-dihydro-1-naphthyl sulfide* (V), from 2-naphthol 1-sulfide (VI), m. 110° (decompn.); warm AcOH gives dehydro-2-naphthol 1-disulfide. 2-MeO deriv. of V, m. 105° (decompn.); F^-AO deriv. m. 102° (decompn.), prep'd. from the Ac deriv. of VI, m. 104°; warm AcOH gives the di- Ac deriv. of 2-naphthol 1-disulfide. Shaking 2-naphthal 1-disulfide with Et_2O and dil. H_2SO_4 in the presence of NaNO_3 gives *1-nitro-2-keto-2-hydroxy-1,2-dihydro-1-naphthyl disulfide*, m. 100° (decompn.); $2\text{N}_2\text{O}_4\text{H}_2\text{O}$ gives $1,2\text{-O}_2\text{NC}_6\text{H}_5\text{OH}$. *Di-1-nitro-2-keto-1,2-dihydro-1-naphthyl sulfide*, m. 121° (decompn.); warm aq. NaOH gives a mixt. of Na salts. The corresponding disulfide, m. 134-7° (decompn.). 2-Naphthol 1-sulfide and 1 mol. HNO_3 give 93% of nitrohydro-2-naphthol 1-sulfide; reaction of HNO_3 with the dehydro sulfide did not yield this nitration product. C. J. W.

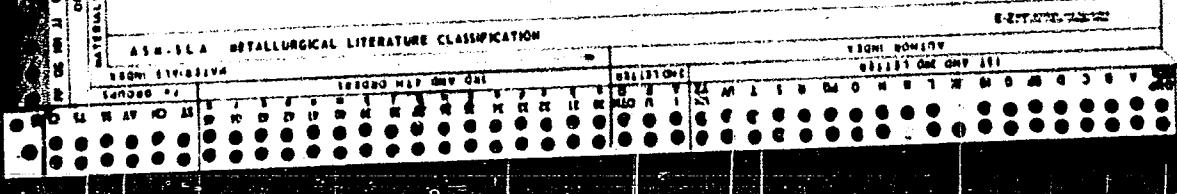
C. J. WESSE

A3B.32.4 METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/13/2001

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2488. Adiabatic Microcalorimeter to Determine Specific Heat of Solids and Liquids. W. Światosławski, M. Rybicka and W. Sołek-Kowalska. *Acad. Polonaise Sci. et Lettres, Bull.*, No. 4-5-6, pp. 322-335, April-May, 1931. In French.—Corrections for the heat necessary to heat the contained gas, for loss or gain of heat due to adsorption or vaporisation of water (or other liquid) by or from the walls of the apparatus, and for variation in the surrounding temperature, are deduced for the author's adiabatic calorimeter [see Abstract 389 (1928)], and a modified form described. This consists of the microcalorimeter proper, which is placed in a spherical glass or copper vessel, and the whole in a large receptacle filled with water maintained at constant temperature. The substance is heated electrically at a rate of 0.28-0.45° per hr. For determining specific heats two such calorimeters are used, one of silver or copper of known heat capacity, the other similar and containing the liquid under examination for liquids, but made of the metal concerned for a metal. Determined in this way the specific heat at 17° of aluminium is 0.214, of pyridine 0.400. (See following Abstract.) C. A. S.



APPENDIX

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2489. Measurement of Heats of Adsorption and Vaporisation with Adiabatic Calorimeter. W. Borkowski and (Miss) E. Bartoszewics. *Acad. Polonaise Sci. et Lettres, Bull.* No. 4-54, pp. 336-347, April-May, 1931. In French.—To avoid the effect of variations in the surrounding temperature the galvanometer and commutator are placed in the receptacle filled with water. With this and other modifications (fully described) the adiabatic microcalorimeter [see preceding Abstract] is used for determining heats of adsorption and vaporisation with only a few cgm. of liquid. The heats of vaporisation of H_2O , C_6H_6 and $CHCl_3$ thus determined are 581, 98.2 and 66.8 cal. ($\pm 0.3\%$); the molecular heats of adsorption on charcoal (prepared by the action of $ZnCl_2$ on wood) of C_6H_6 , $EtOH$ and CCl_4 are 14.4, 15.6, and 15.8 cal./mol. ($\pm 0.6-1.7\%$) respectively, all at 20°. C. A. S.

G A S

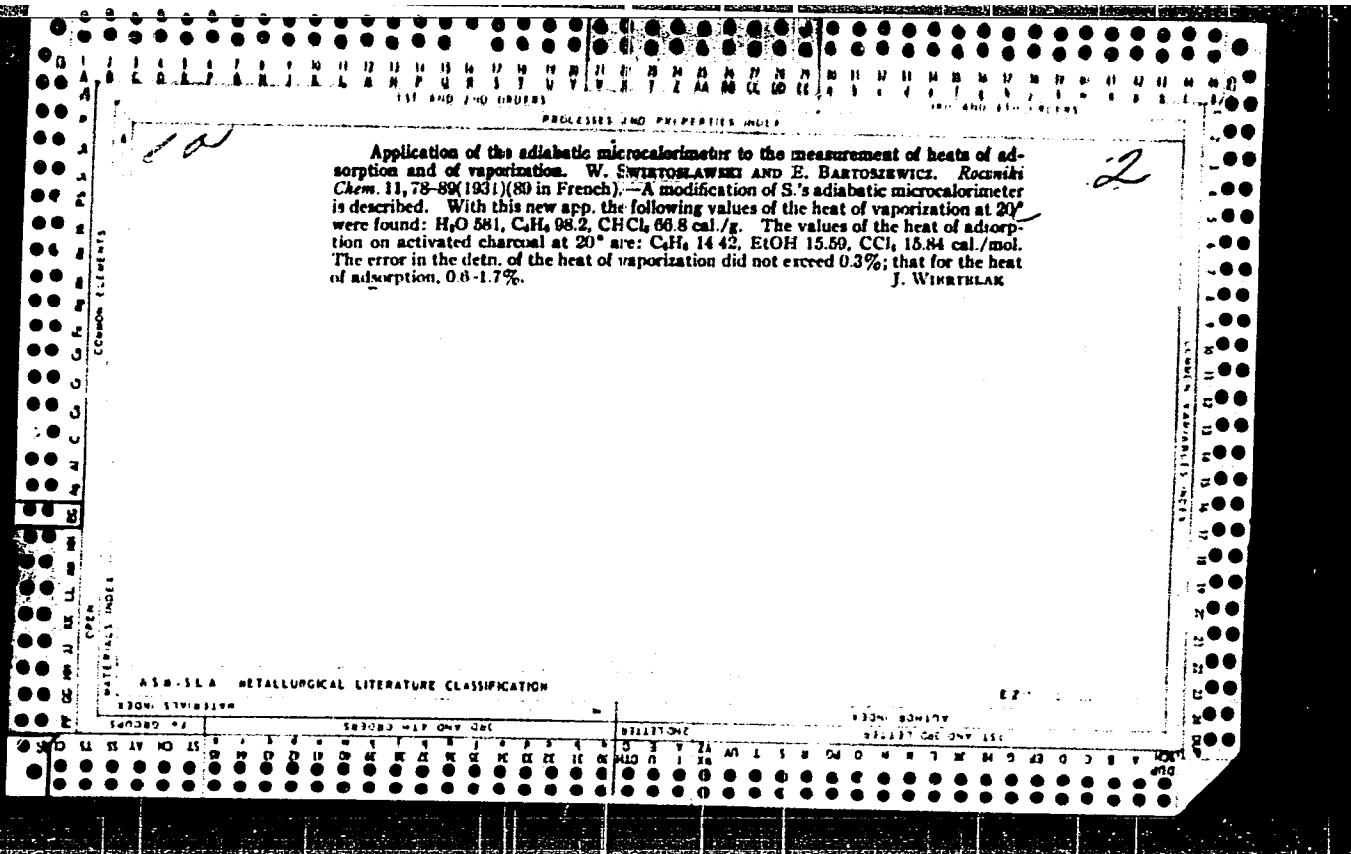
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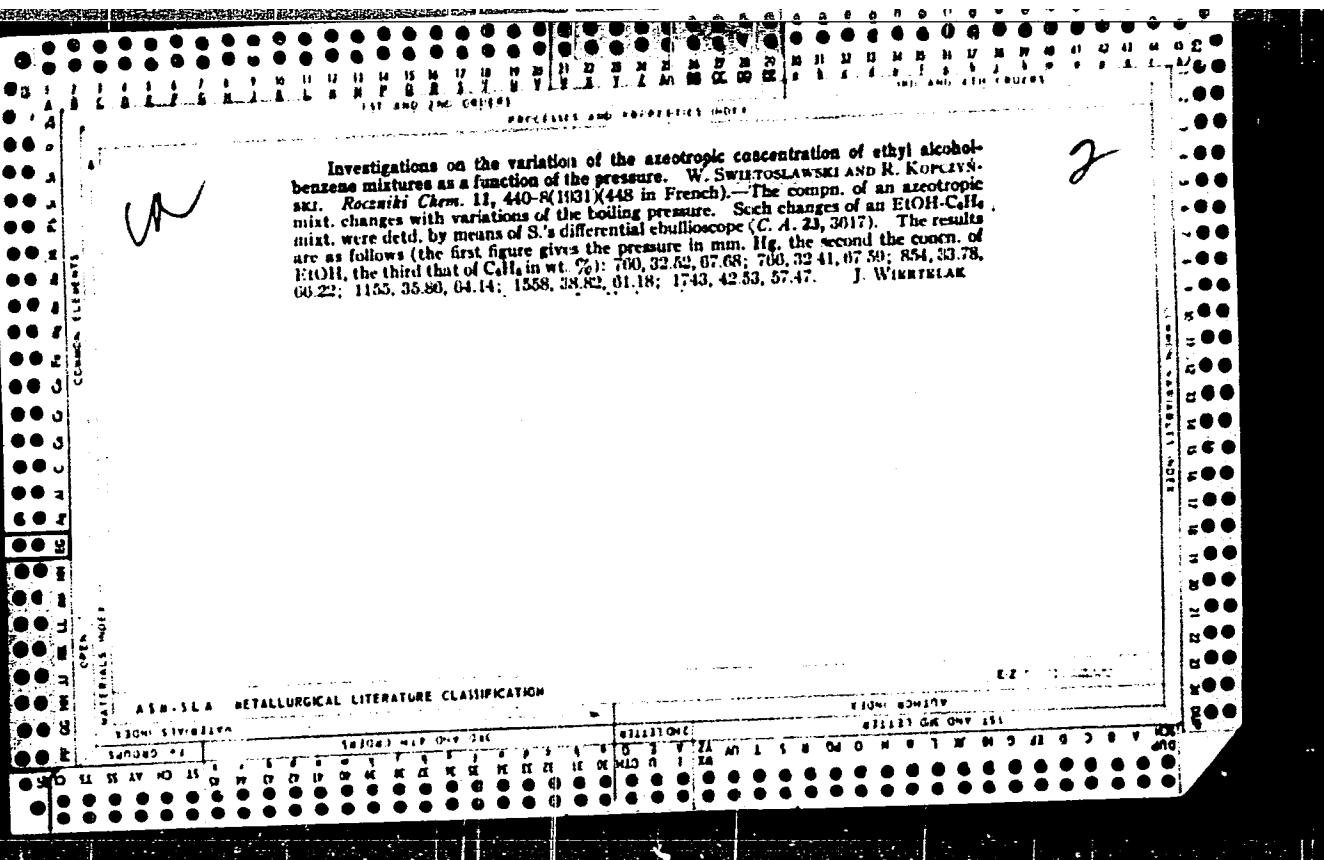
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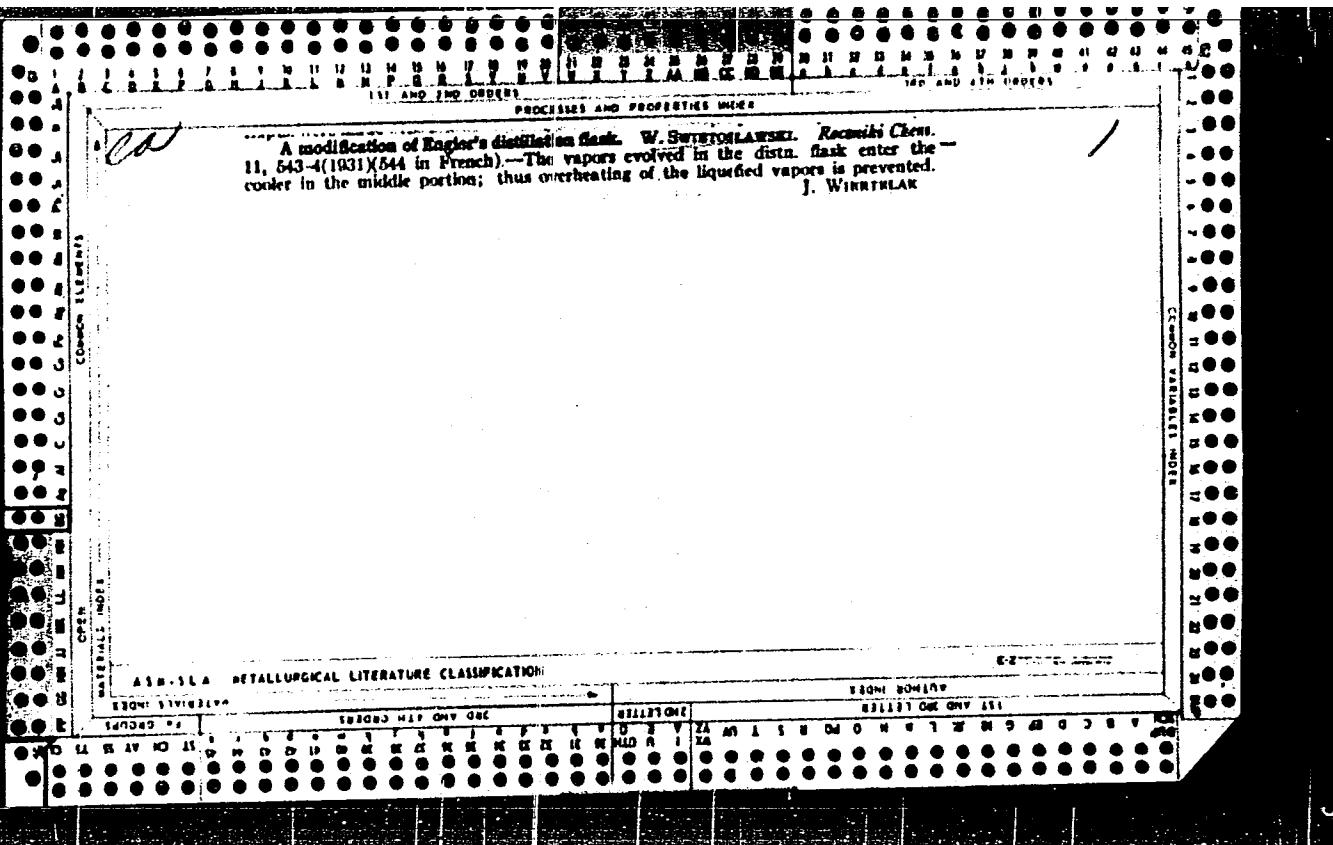
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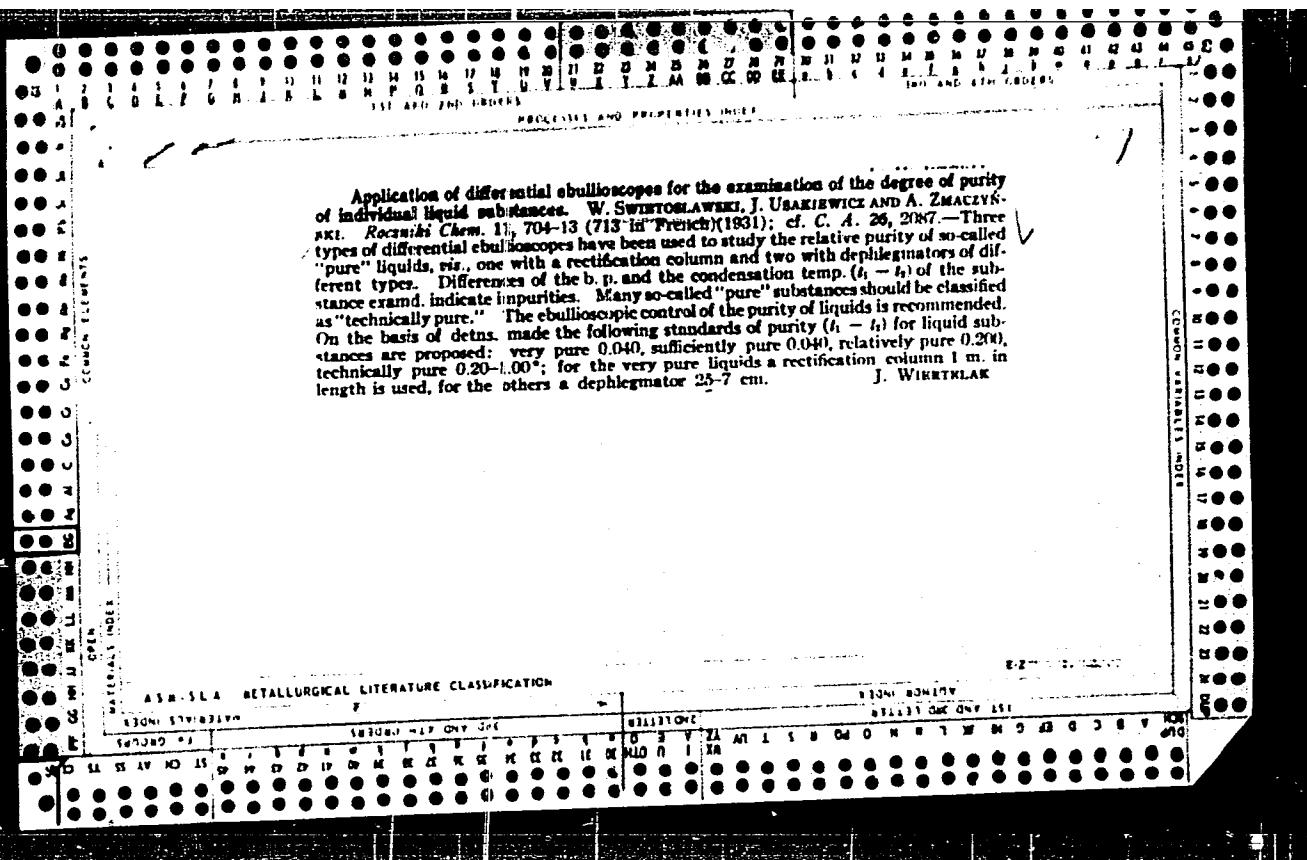
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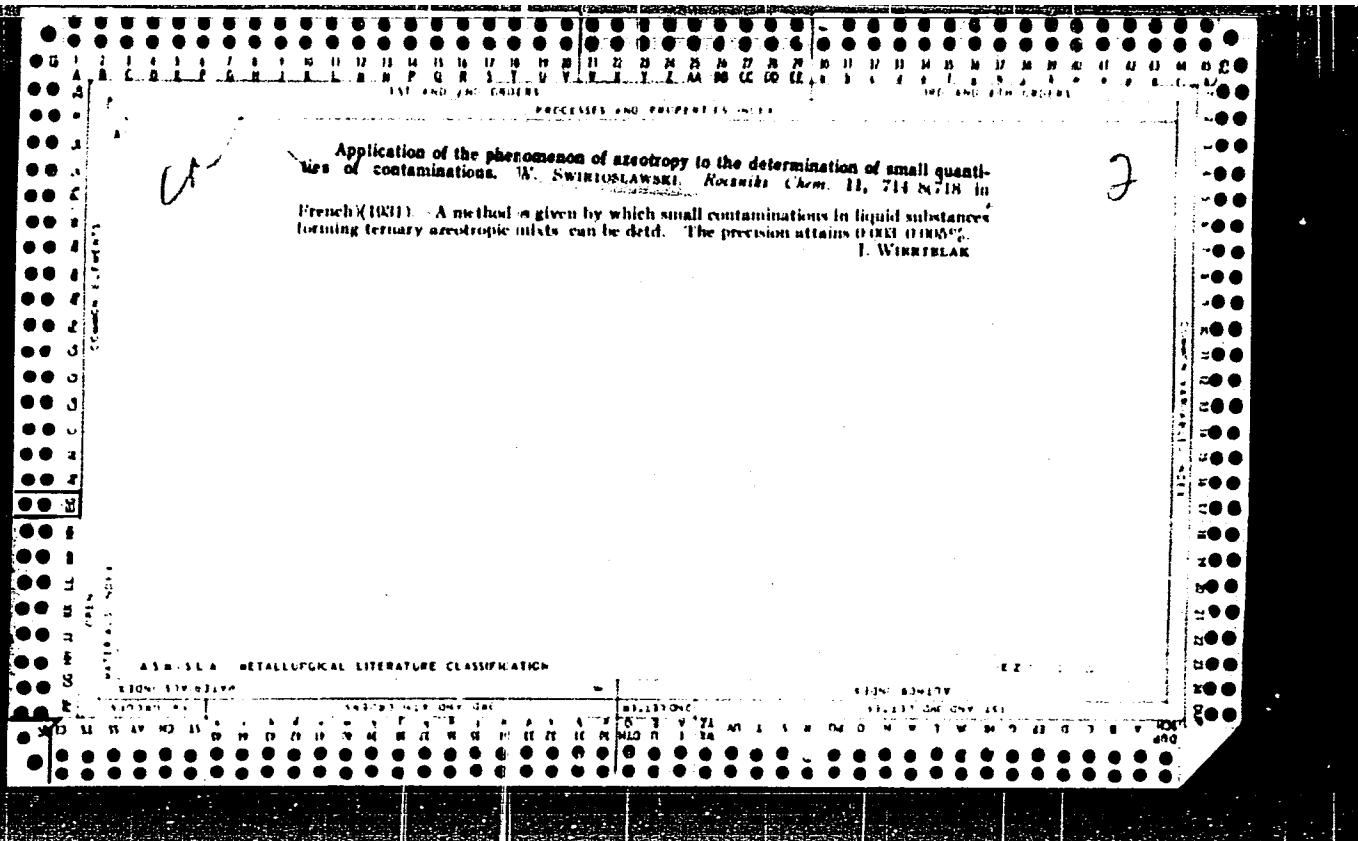
Preparation of sulfonic derivatives of naphthoquinonechloroimines and naphthoquinonechlorodilimines. W. SWIKOTOWIAKSI, A. PILTE AND E. KRAZICKIEWICZ. *Roczniki Chem.* 11, 40-84 (8 in French) (1931).—1,2,4-C₆H₃(NH₂)OH₂SO₃H (I), which chlorinated in an aq. suspension with Cl water or gaseous Cl, yields the corresponding quinonechloroimine. The latter, reduced by gaseous SO₂, regenerates I in 45% yield. Similarly, I in a satt. soln. of AcOK, chlorinated at 0° with gaseous Cl, gives K 2-naphthoquinone-1-chloroimino-4-sulfonate, C₁₀H₇NOSK. This compd. can be reduced with gaseous SO₂ to I with a 97% yield. K 2-naphthoquinone-1-bromoimino-4-sulfonate is prep'd. from a satt. soln. of I in AcOK by treating with Br water satt. with KCl. K 1-naphthoquinone-2-chloroimino-4-sulfonate (II) is prep'd. from 1,2,4-C₆H₃(OH)₂SO₃H II by chlorination with a satt. soln. of Cl in satt. KCl during a very short period at -11°. Recrystl. from H₂O it gives bright yellow crystals (yield 45-55%). The product is not sufficiently pure and contains 12.5% of the corresponding naphthoquinone. K naphthoquinone-1,4-dichloroimino-8-sulfonate, C₁₀H₇N₂Cl₂OSK, is obtained in a similar manner from 1,4,6-C₆H₃(NH₂)₂SO₃H at -10°. The product is very unstable and cannot be recrystl. It is obtained purer than II, but contains still the corresponding naphthoquinone. J. WIGRZELEK











CA

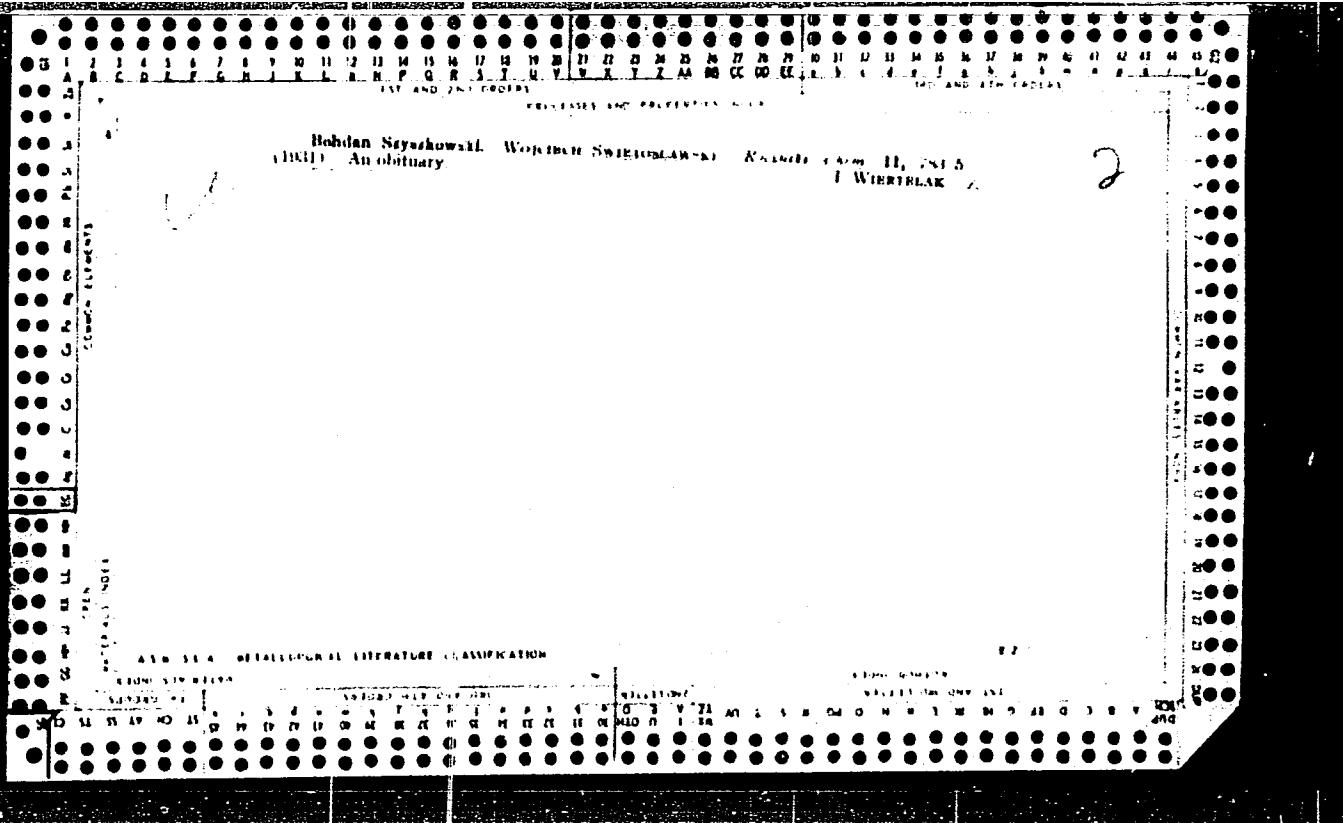
CHARACTERS AND PROPERTIES

Determination of moisture and the azeotropic factor in ethyl alcohol. W. SWIĘTOCH
ŁAWSKI AND J. SEMIGIĘLSKA. Roczniki Chem. 11, 719-725 (1937) in French (1937). The
method of S. (C. A. 26, 3178) is applied to admixts. of H₂O, C₂H₆ and gasoline in
ETOH. J. WIERUSIAK

ASH-VLA - METALLURGICAL LITERATURE CLASSIFICATION

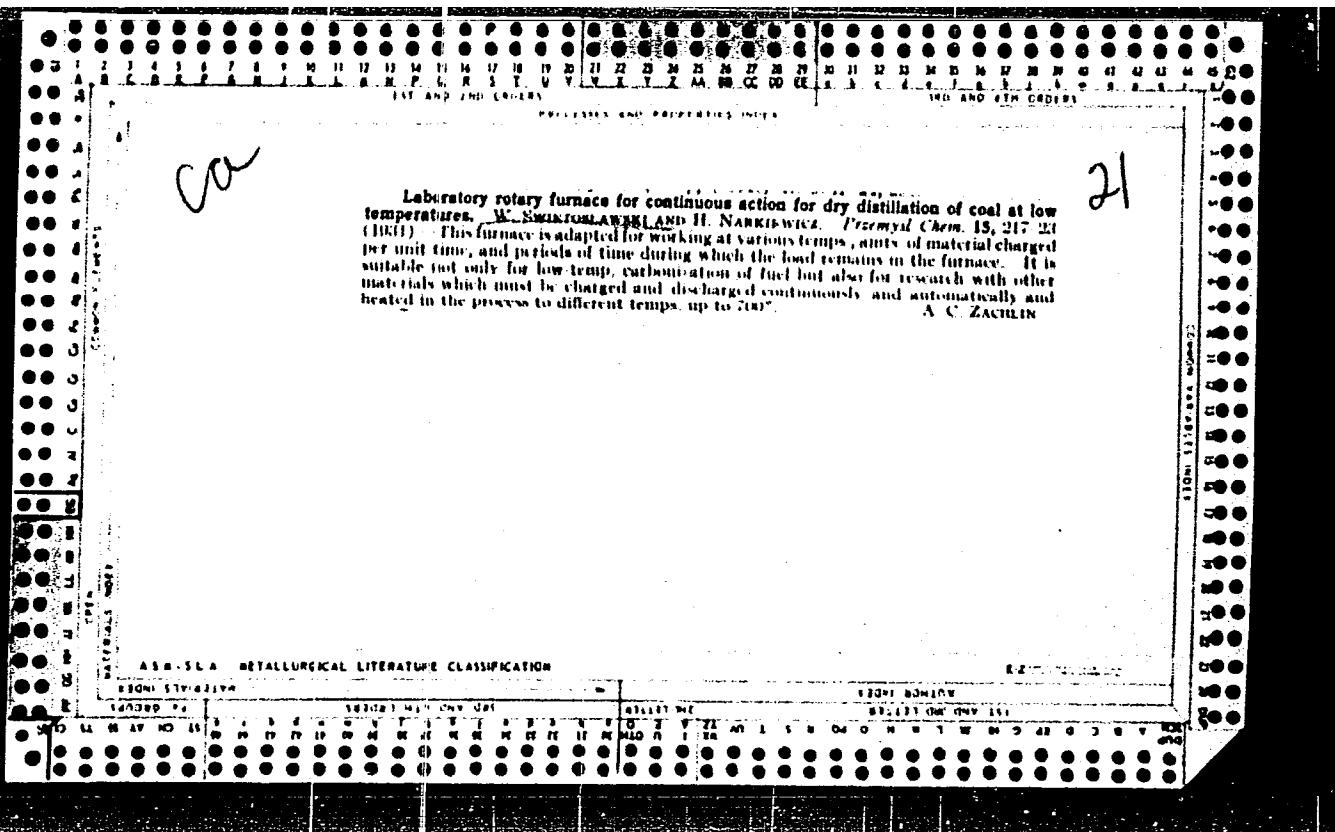
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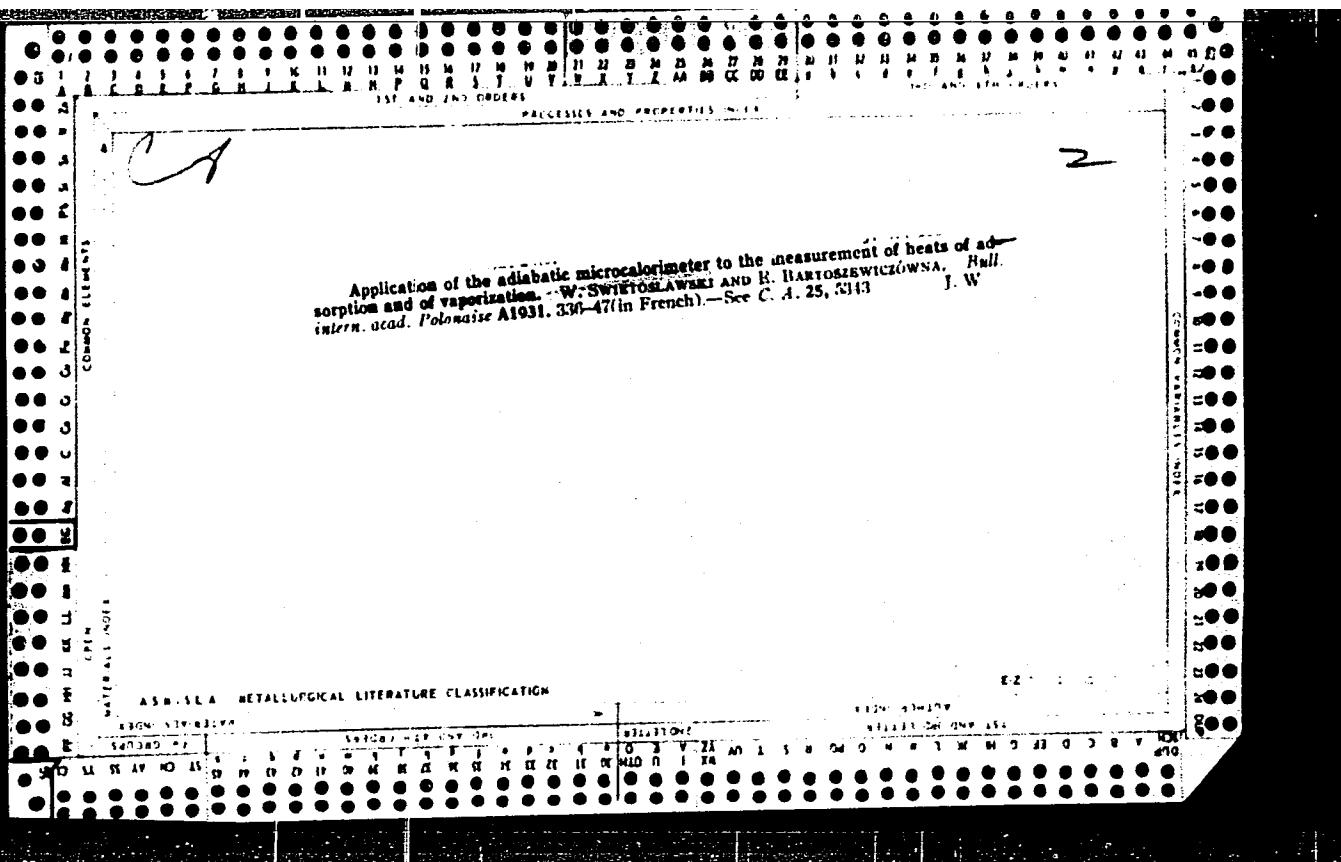
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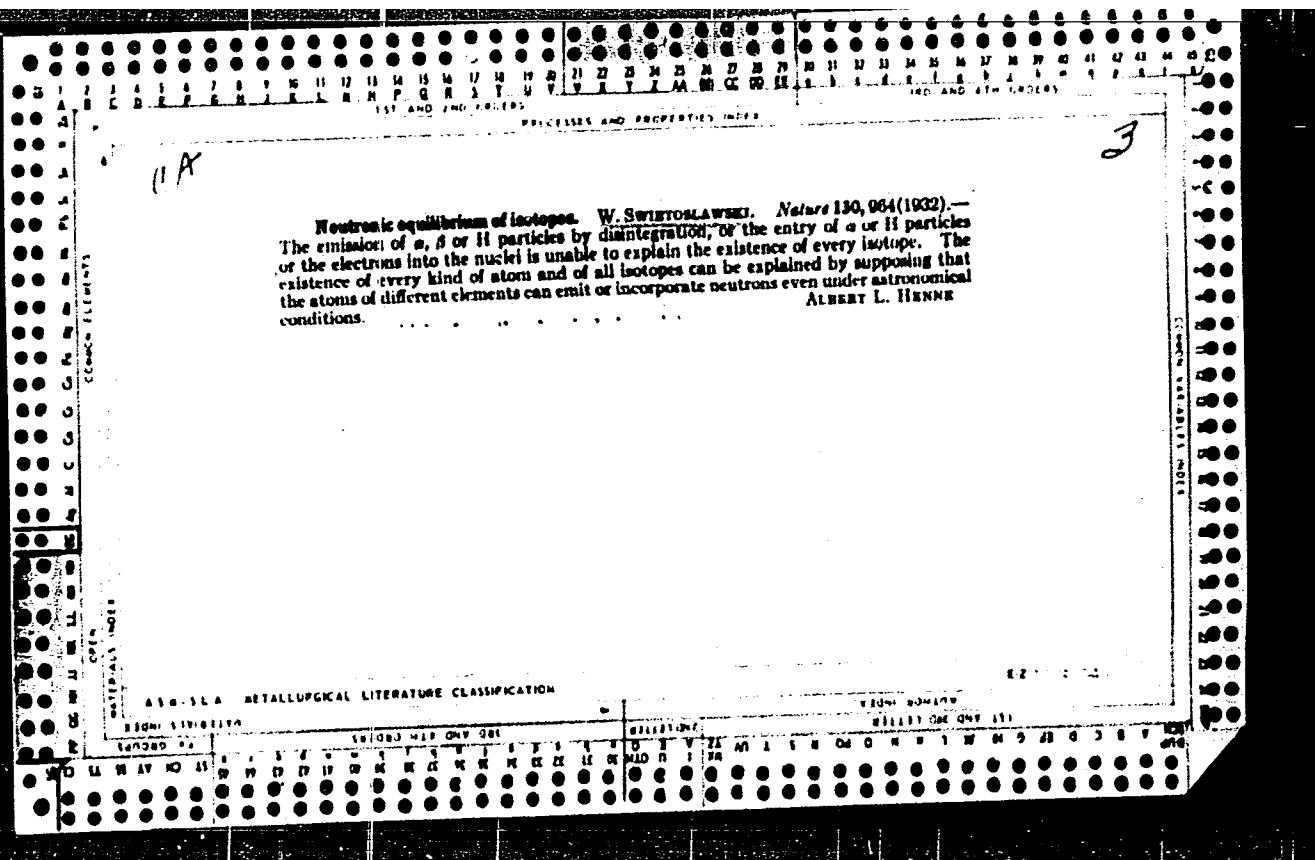


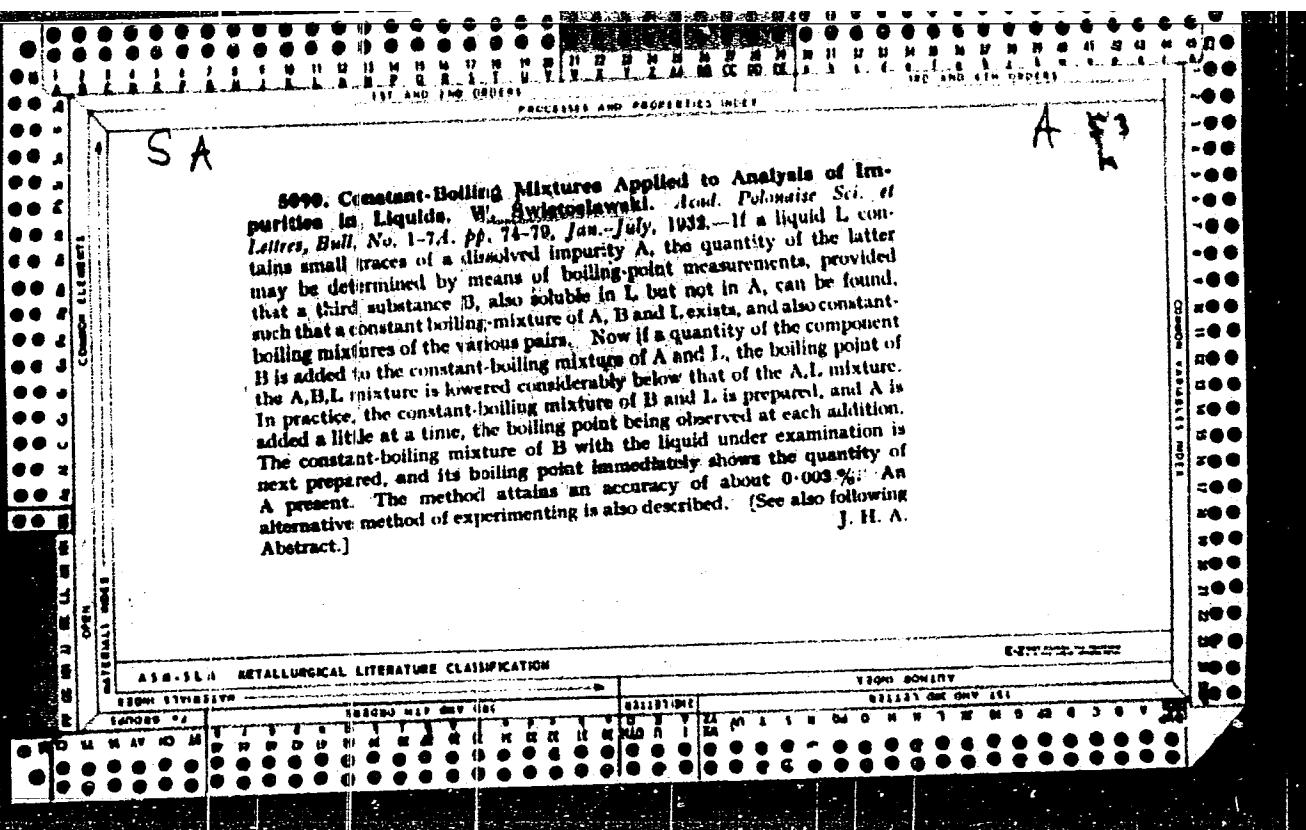
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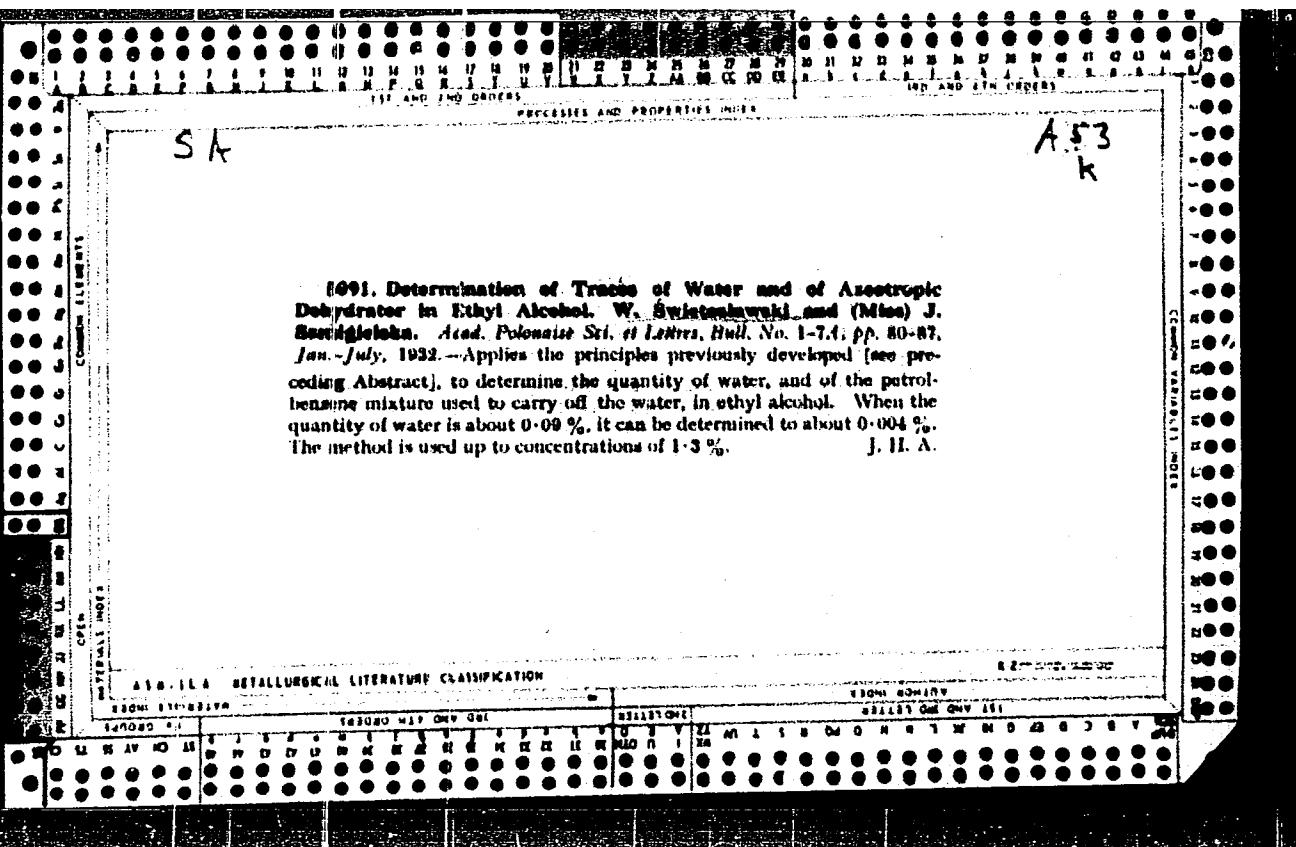
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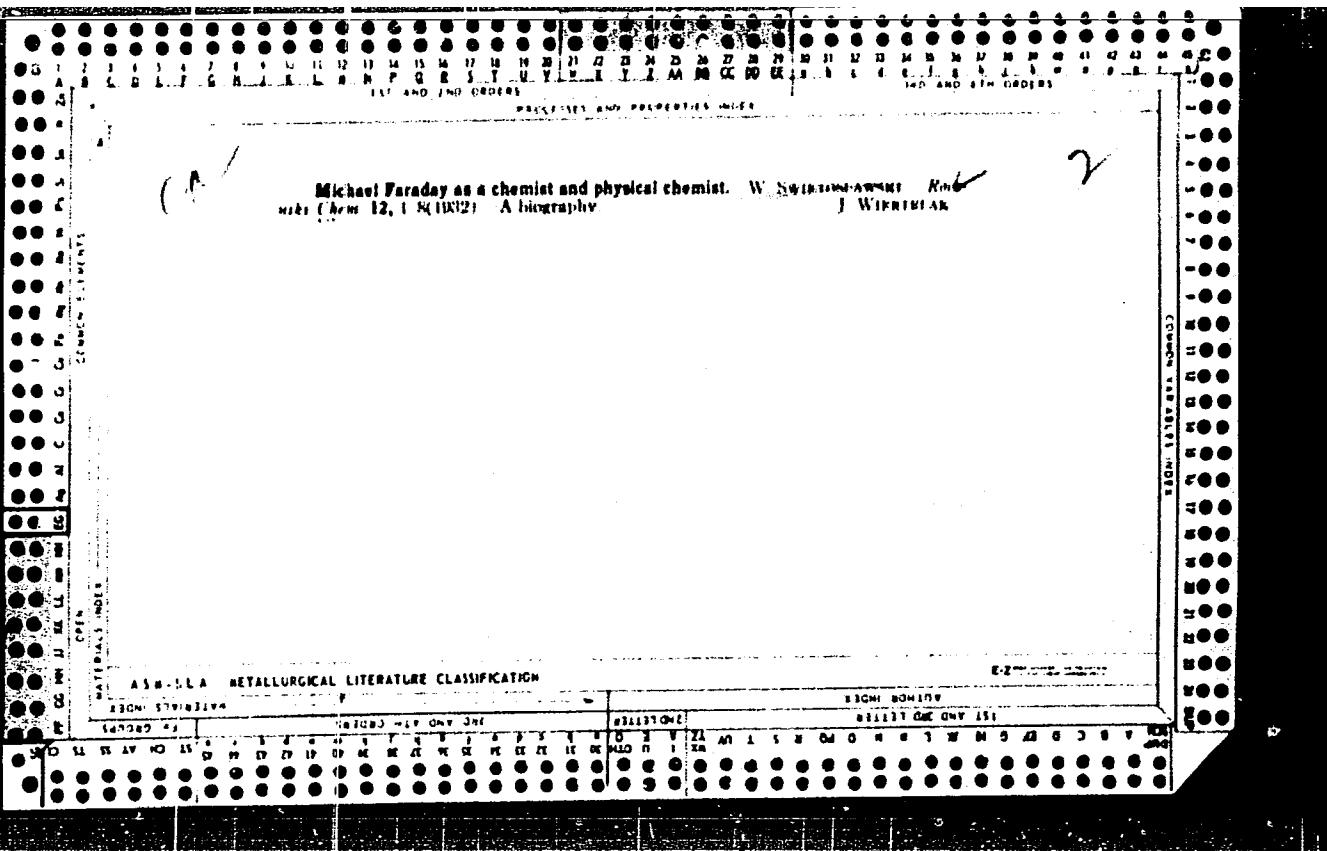












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Binary azeotropic mixtures. W. SWIATOSLAWSKI, J. JIST, L. WAJCIKOWSKA, I. WUTTER AND P. WOJCZAK. Rocznik Chem. 12, 48-57(57 in French)(1932).—C₆H₆ and AcOH do not form an azeotropic mixt. The azeotropic mixt. of C₅H₈-acetone has 19.27%. The mixt. contained only small amts. of moisture. The b.p. of C₆H₆-H₂O is 17.01°, that of toluene-H₂O is 76.81°; both are at normal pressure. J. W.

ASME LIBRARY METALLURGICAL LITERATURE CLASSIFICATION

Improvement of the quality of Upper Silesian coke. W. SIEJEKINSKI AND M. AWAŁI. In *Characteristics of Upper Silesian coke*, *Przegl. Chem.* 16, 49-62 (1932); *and Review of earlier investigations on its improvement*, *Przegl. Chem.* 16, 49-62 (1932).
24, 5881.—It is suggested that to improve Upper Silesian coke, first he improved, first he improved. All the coals used for coking and chemical properties of its mech. strength should be improved. They have a coking no. as high as that of typical coking coals. The gaseous coking should be improved. Their bituminous substances are as high as that of typical coking coals. The thermal resistance should be improved. These coals the plastic state is lower, however, and they decompose. The thermal resistance should be improved. The thermal resistance should be reached in the brief period of their plastic state. In coking compon. of the bituminous substances below their m. p., because as possible to avoid. In coking cake is obtained. The absence of expansion pressure of these otherwise a very weak stages of coking. Degassing takes place in the 3rd stage instead of gases is a drawback in these coals, as are also their high volatile fraction and the evolution of the 2nd, or the last

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The results of these experiments will be directed. A. C. ZACHUS

Improvement of the quality of Upper Silesian coke. VI. W. Świętłowski, B. Roga and M. Chorazy. *Przemyśl. Chem.* 16, 188-96 (1932); cf. *C. A.* 26, 6102.
 The results of lab. investigations were checked with full-scale app. With slow warming i. e., at low temp. of coking, coke is obtained in large pieces, with few cracks, but of low crushing strength. With increased rate of heating, which occurs when the oven is heated to a high initial temp., the strength increases, the coke is compact, but flaky and in small pieces. Heating in two steps improves the quality of coke, especially if poor-grade coal is used. The addn. of semicoke to the coal before coking markedly improves the quality of the coke, as shown by its increased mech. strength. Semicoke with fully defined phys. properties must be used. In certain cases the addn. of non-coking coal acts favorably. VII. W. Świętłowski, M. Chorazy and B. Roga. *Ibid.* 17, 25-33 (1933).—The coking process is divided into 3 phases differentiated by the physicochem. changes which take place. Besides the insignificant visual changes which take place in the first phase up to the plastic state profound changes occur in the primitive colloidal nature of coal. In the coking and gas-forming caking coals the developed surface of the non-melting and neutral material which is to be cemented together by the semi-liquid mass is of utmost importance. Satn. of the developed surface is hindered by the surface tension of the semi-liquid mass and the evolution of gas bubbles. Since the surfaces of the coals are developed to widely varying degrees it is difficult to recognize the phenomena. The condition of cementing the solid particles together by means of the semi-liquid mass is considered by the authors in connection with sand, anthracite, coke, semicoke, etc., of the same fineness. In the third phase of the process the real and apparent sp. gr. of the coal change at different rates depending on the kind of coal. The appreciable quantities of gas which are evolved at 700° can escape only by diffusion and through cracks and fissures produced in the coke.

A. C. Zachlin

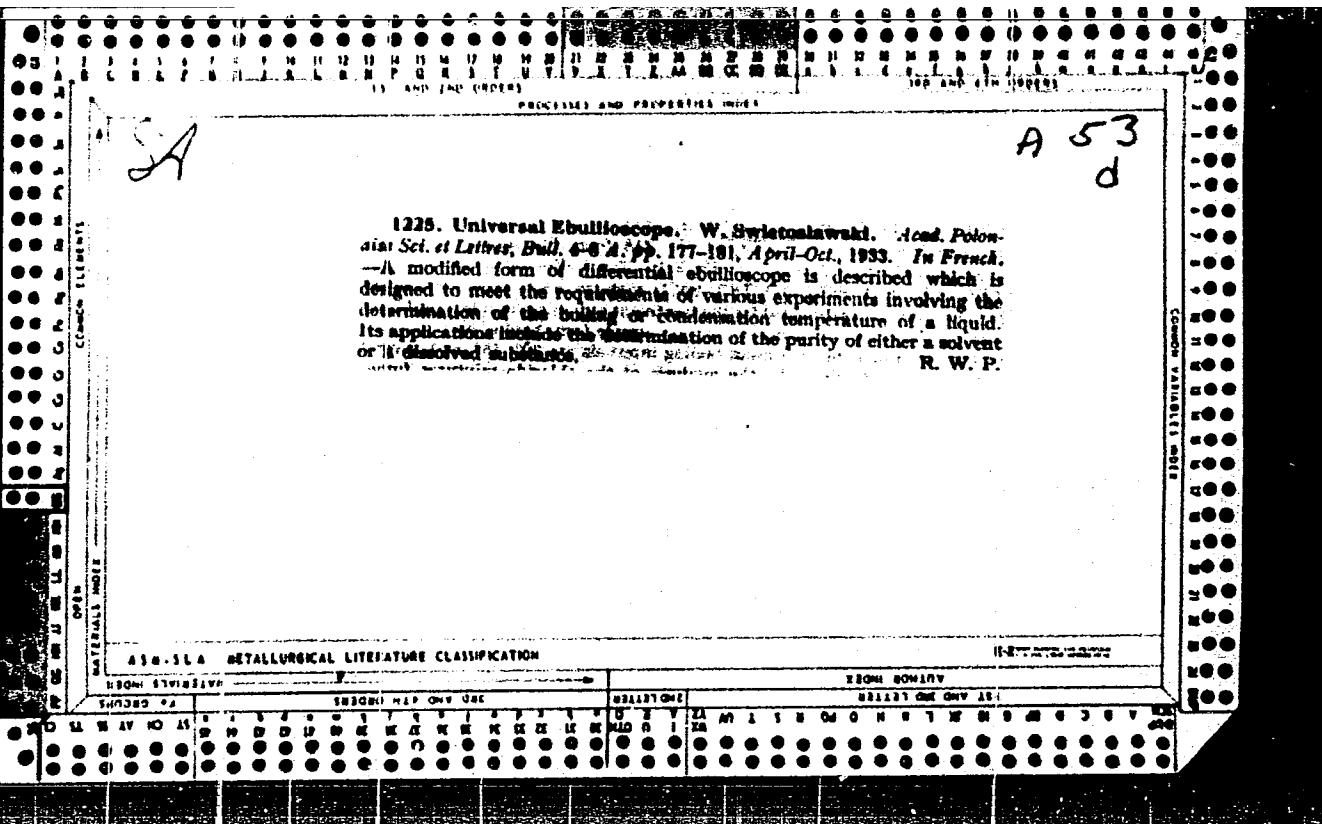
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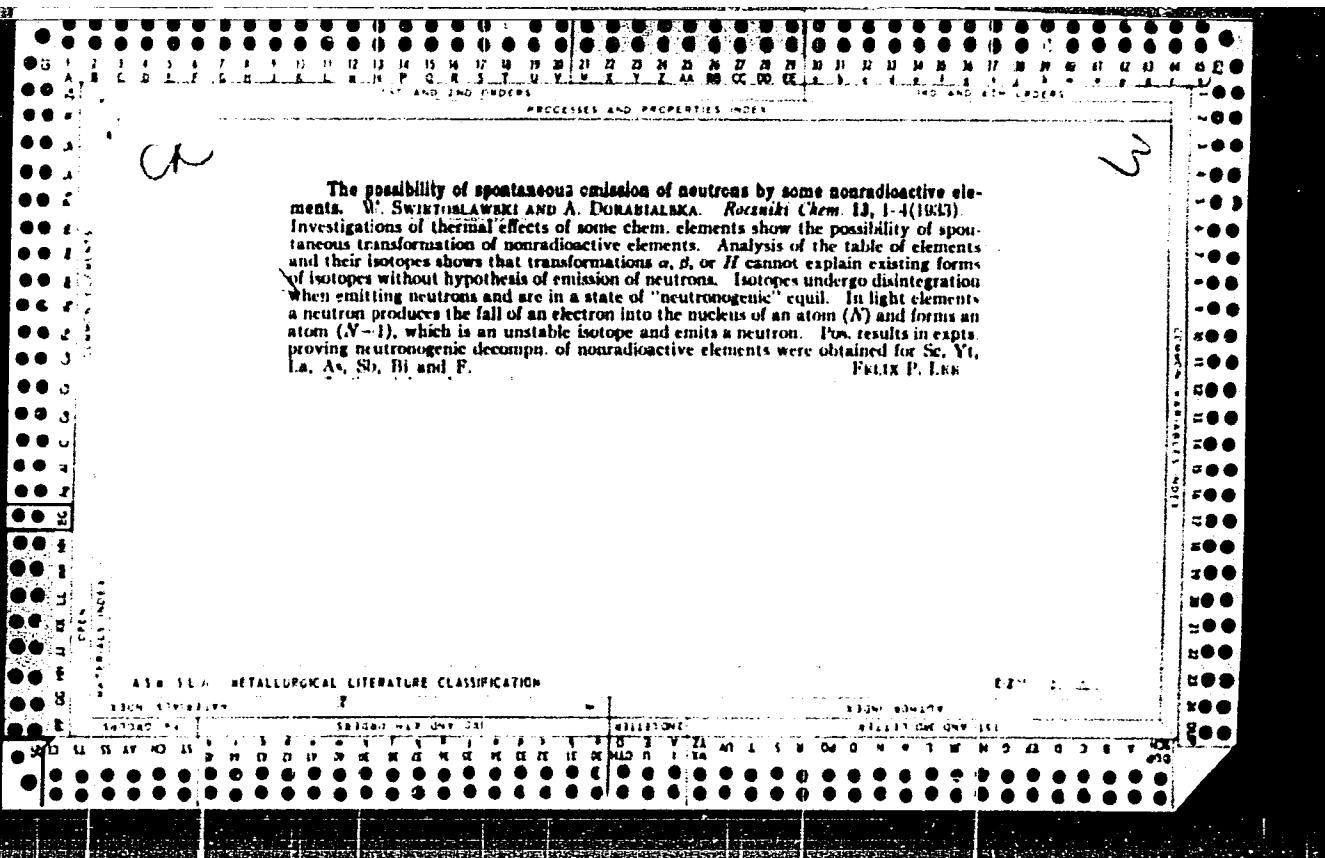
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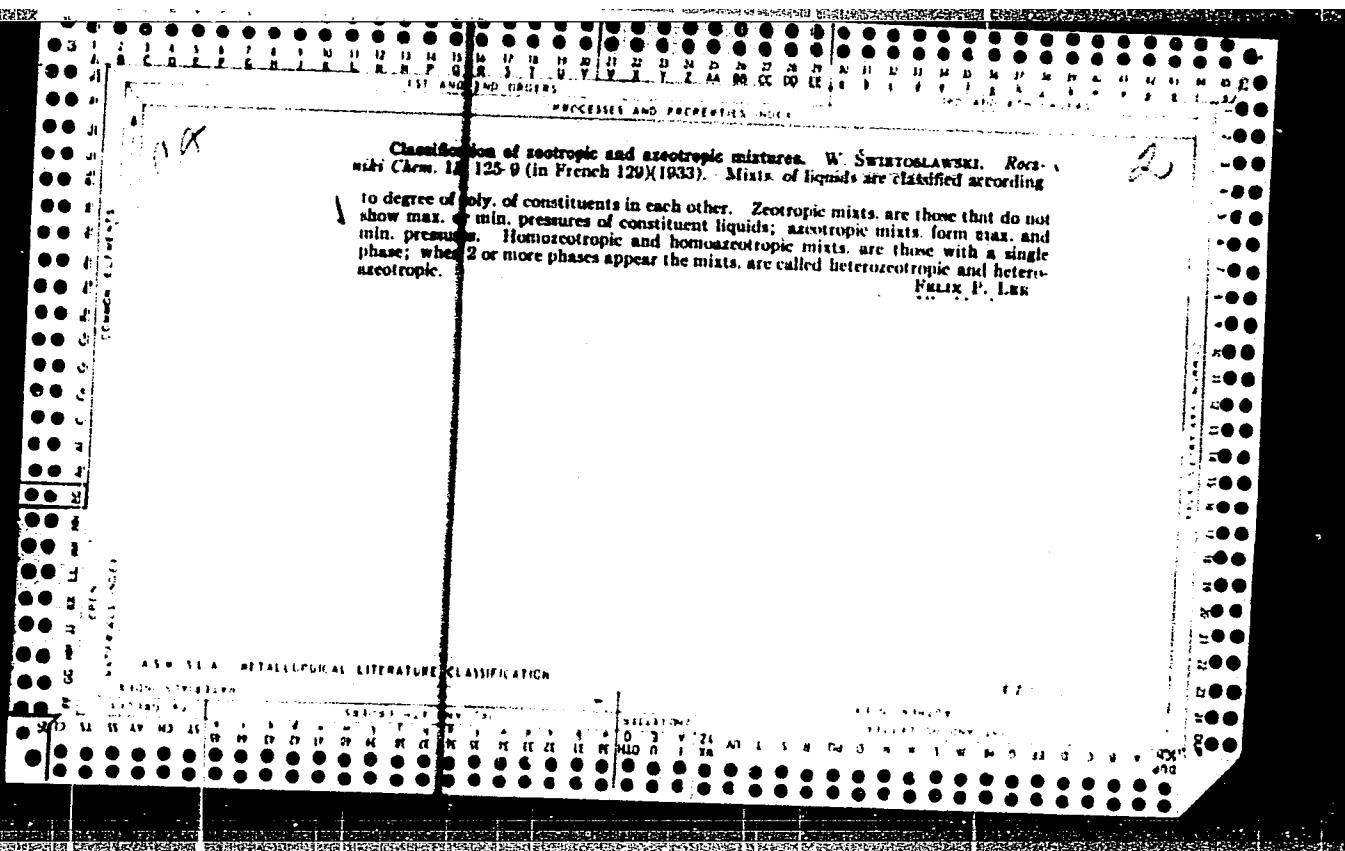
Determination of moisture and the azeotropic factor in ethyl alcohol. W. SWIKOS-
LAWSKI AND J. SZMIGIELSKA. *Bull. intern. acad. polonaise* 1932A, no. 7 (in French);
See CIA, 26, 5513.

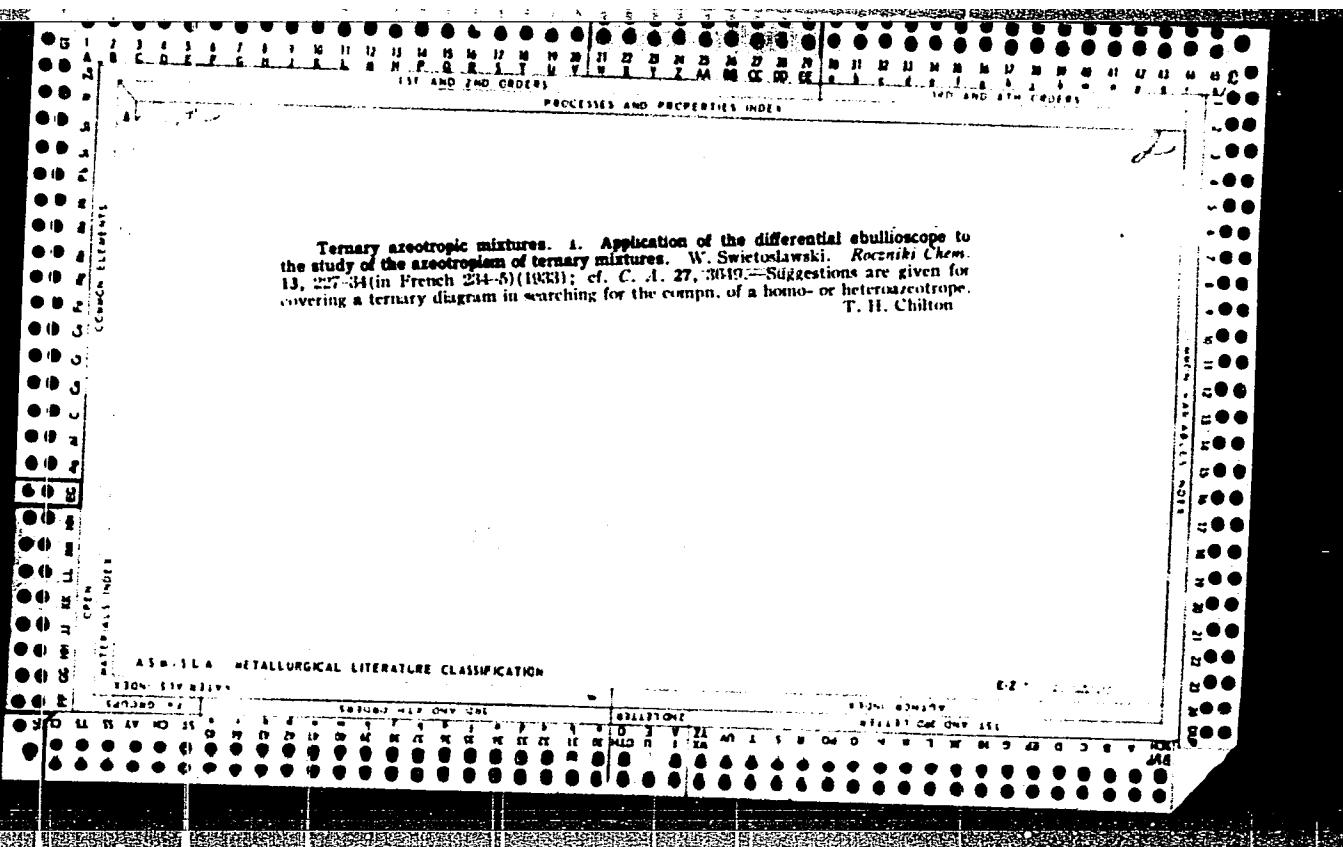
J. WIERIELAK

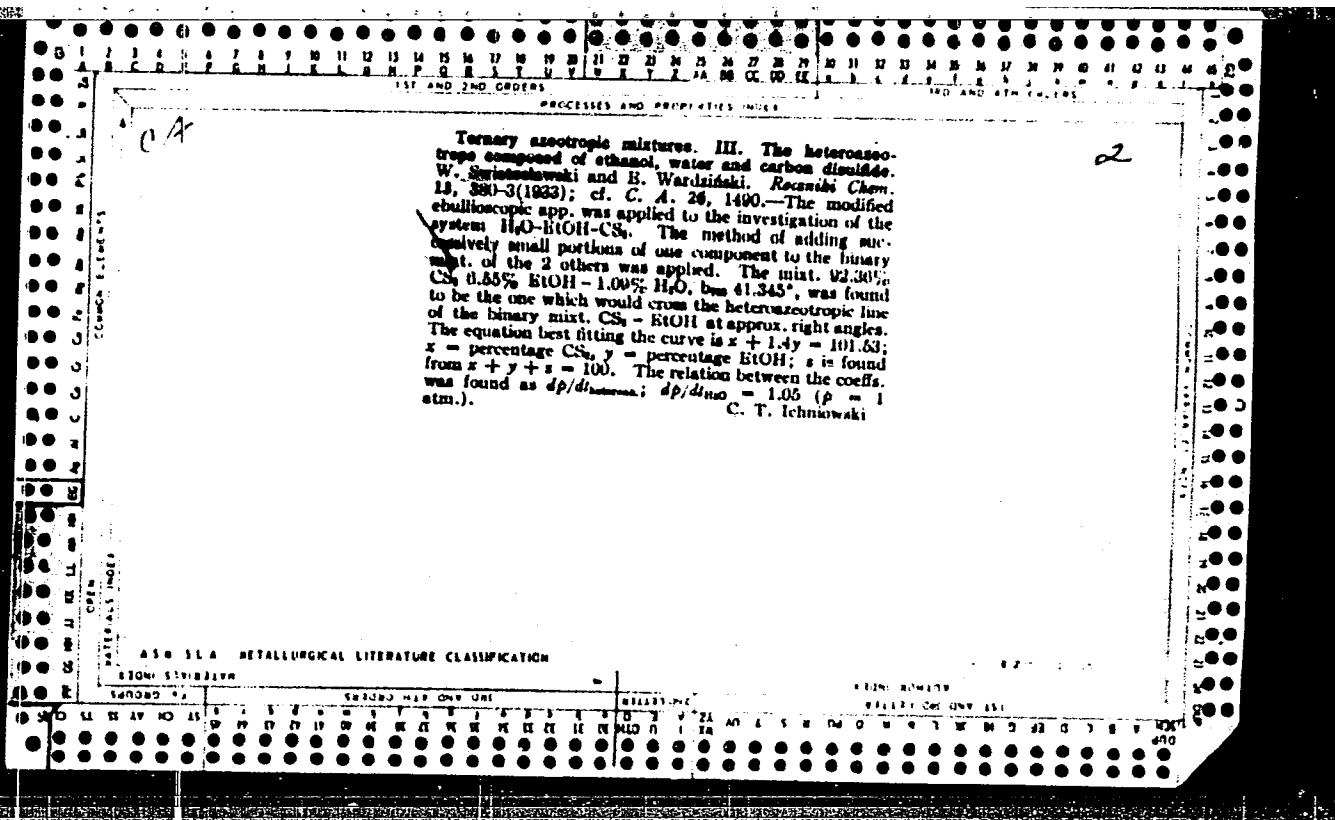
ANALOGUE - METALLOGRAPHIC LITERATURE CLASSIFICATION

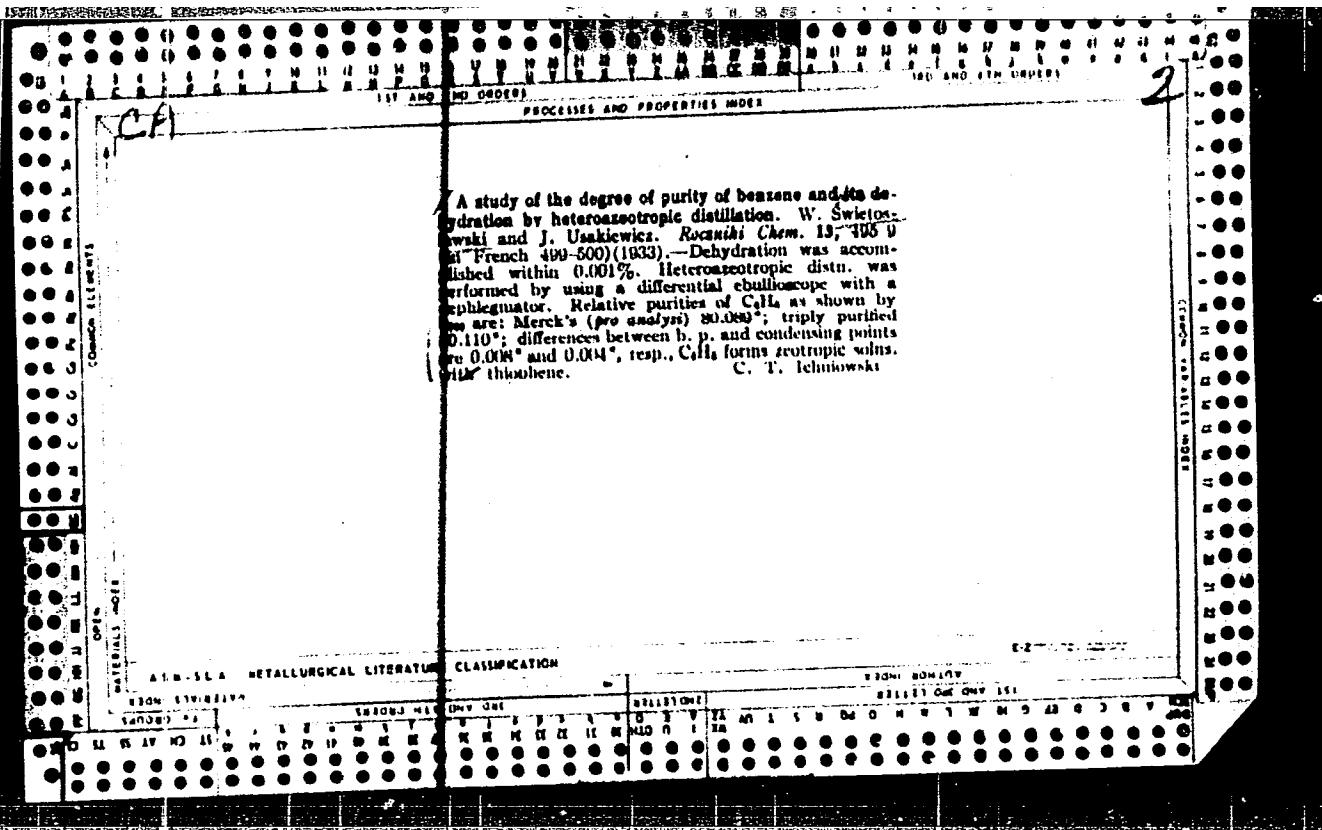


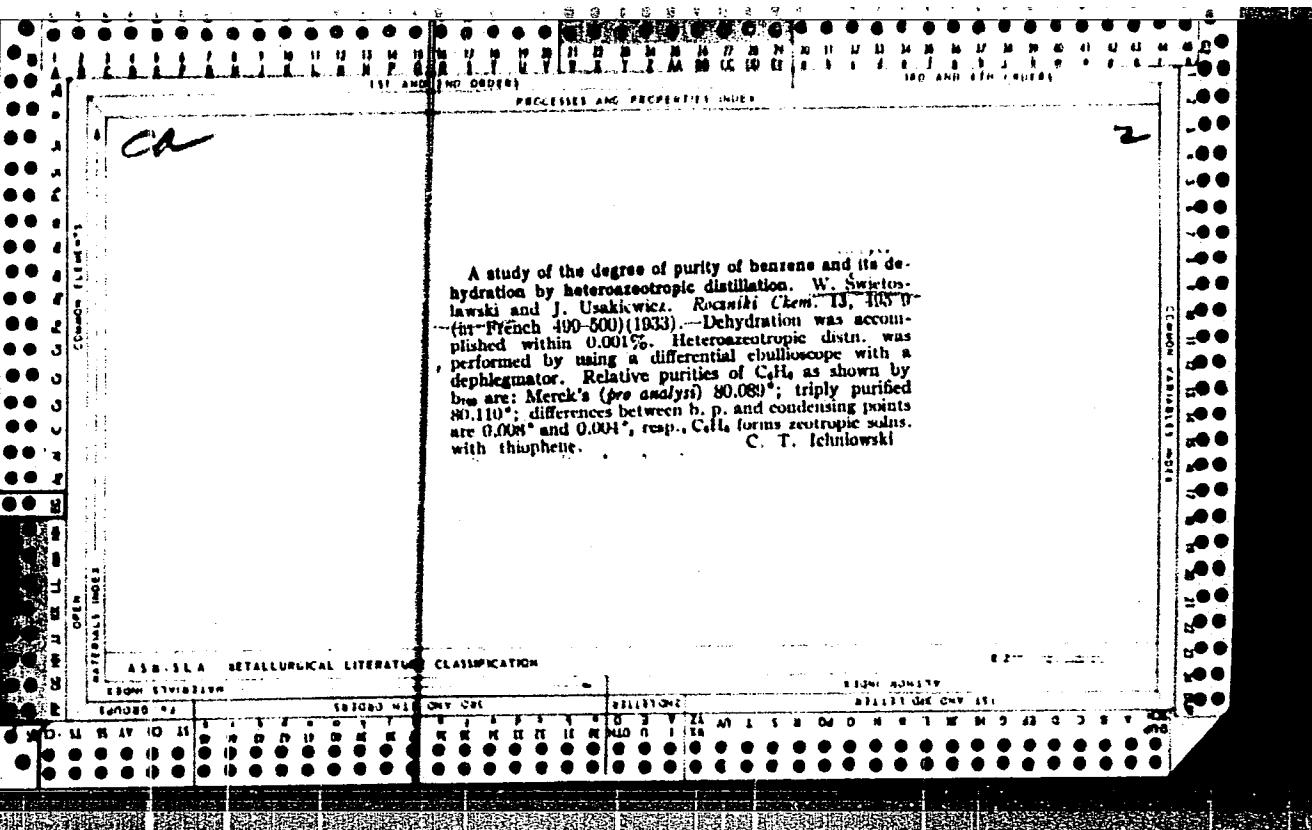


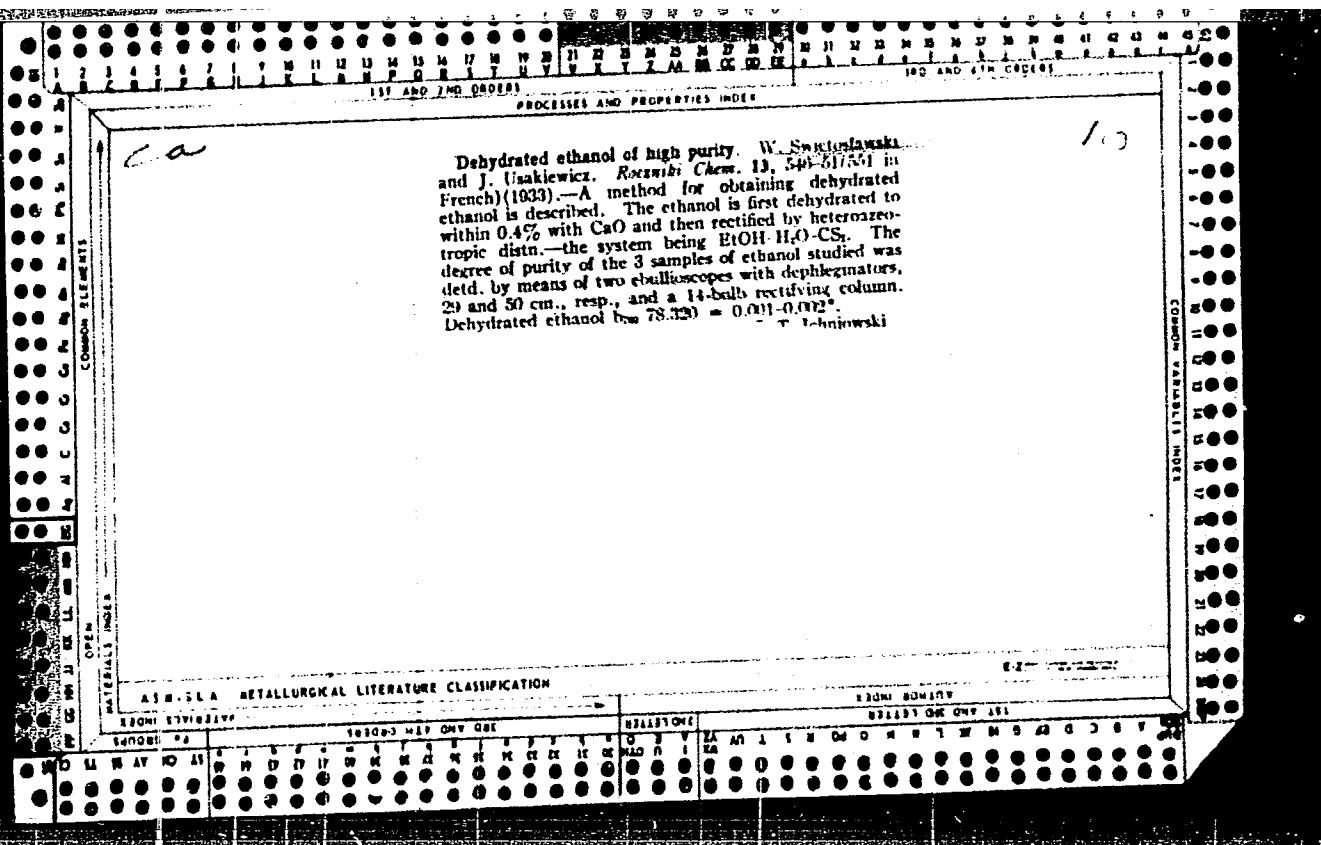


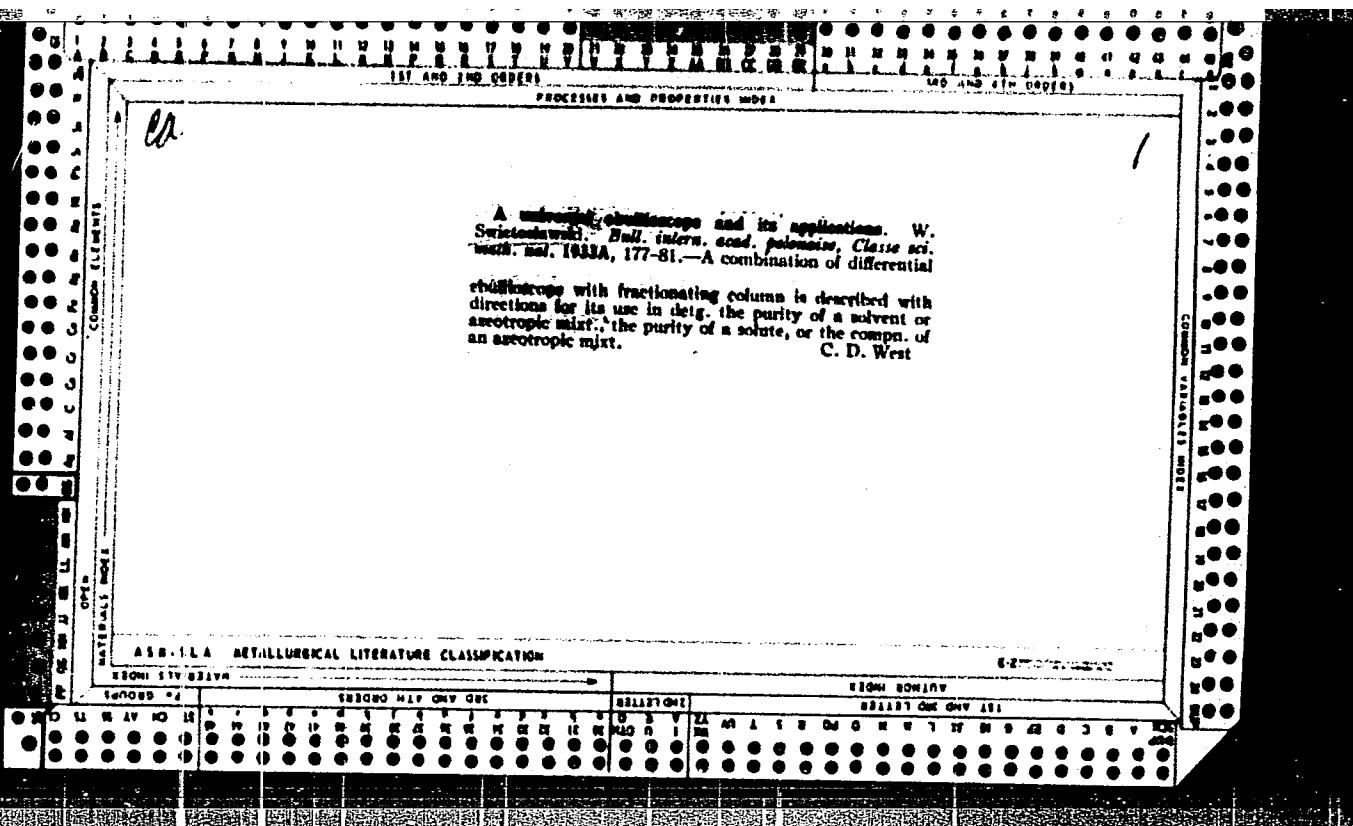


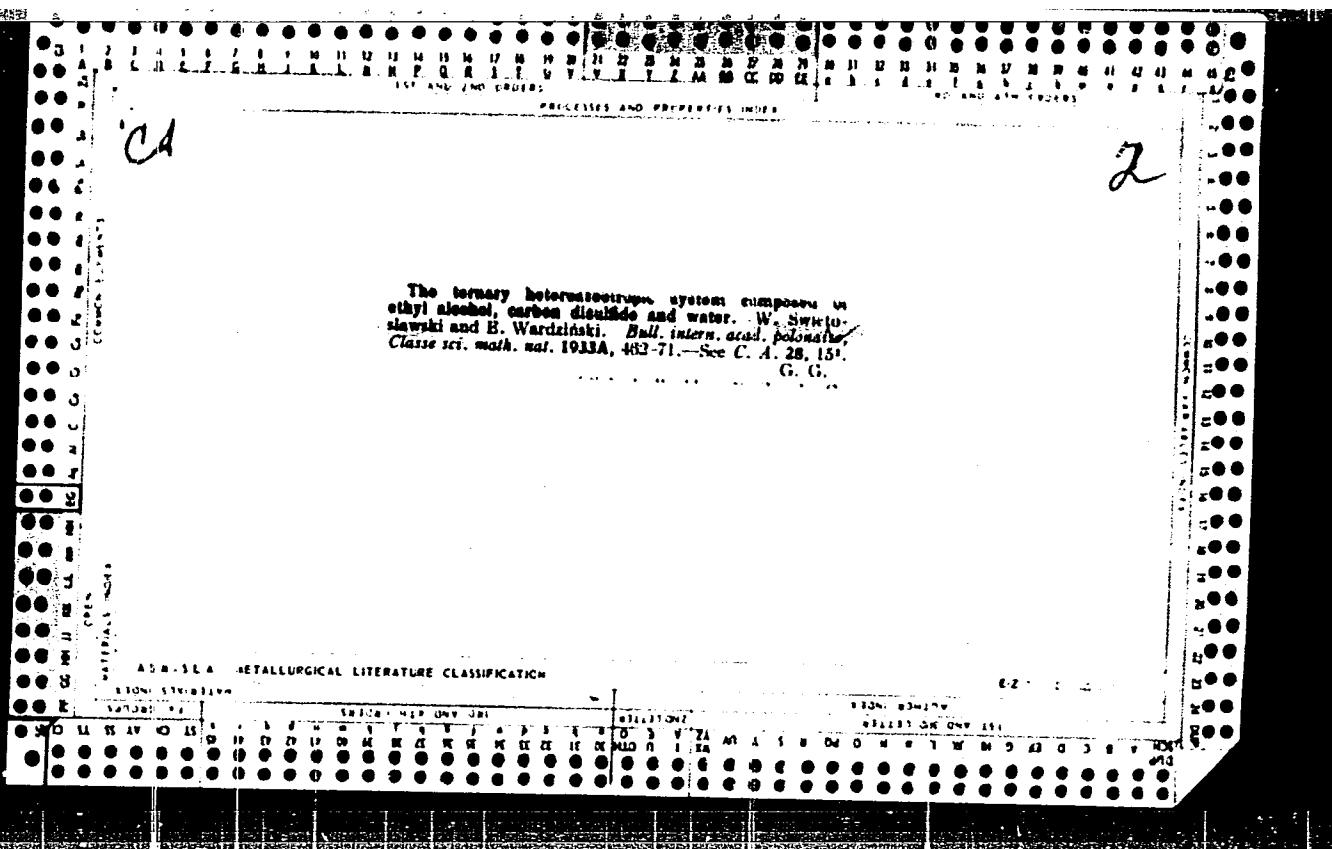


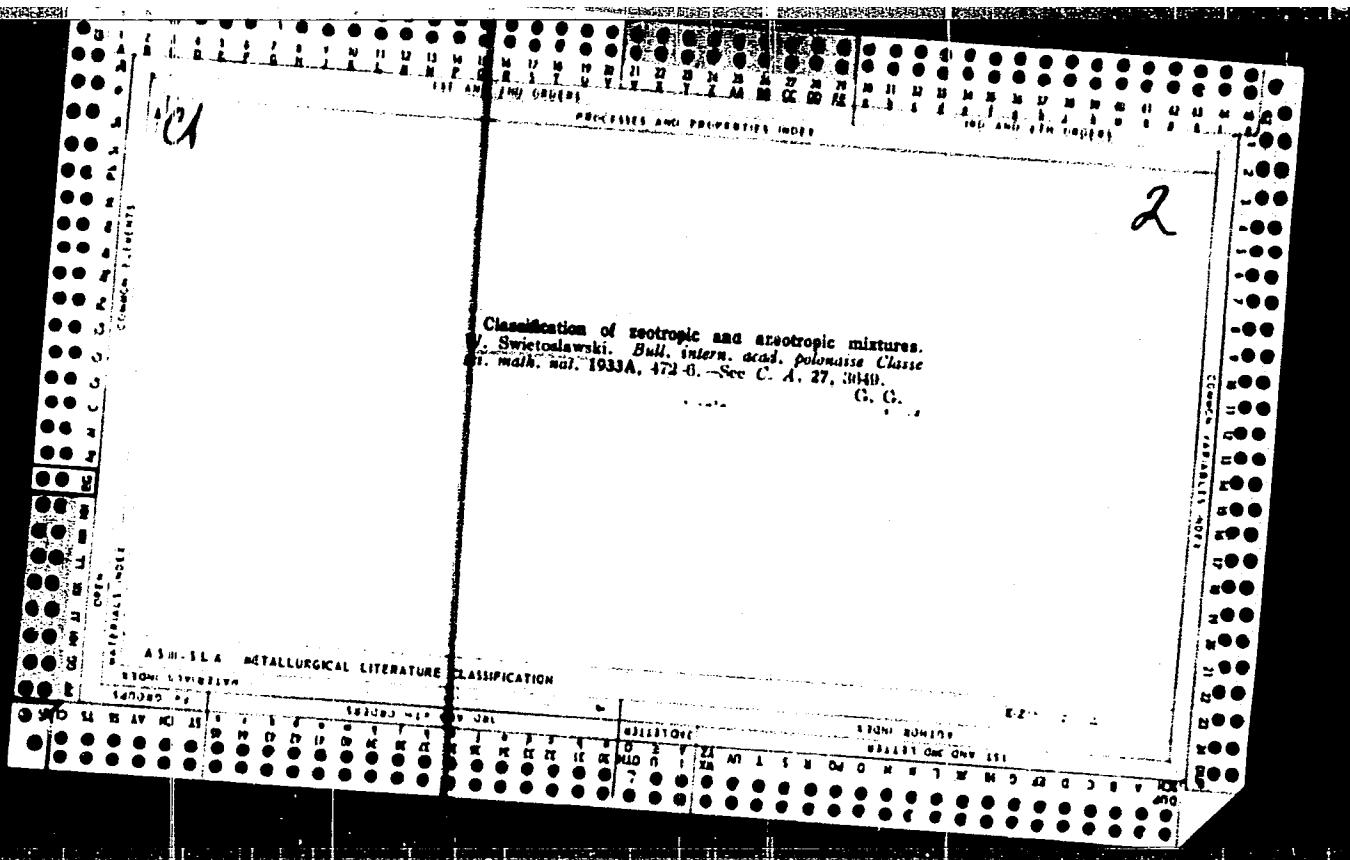


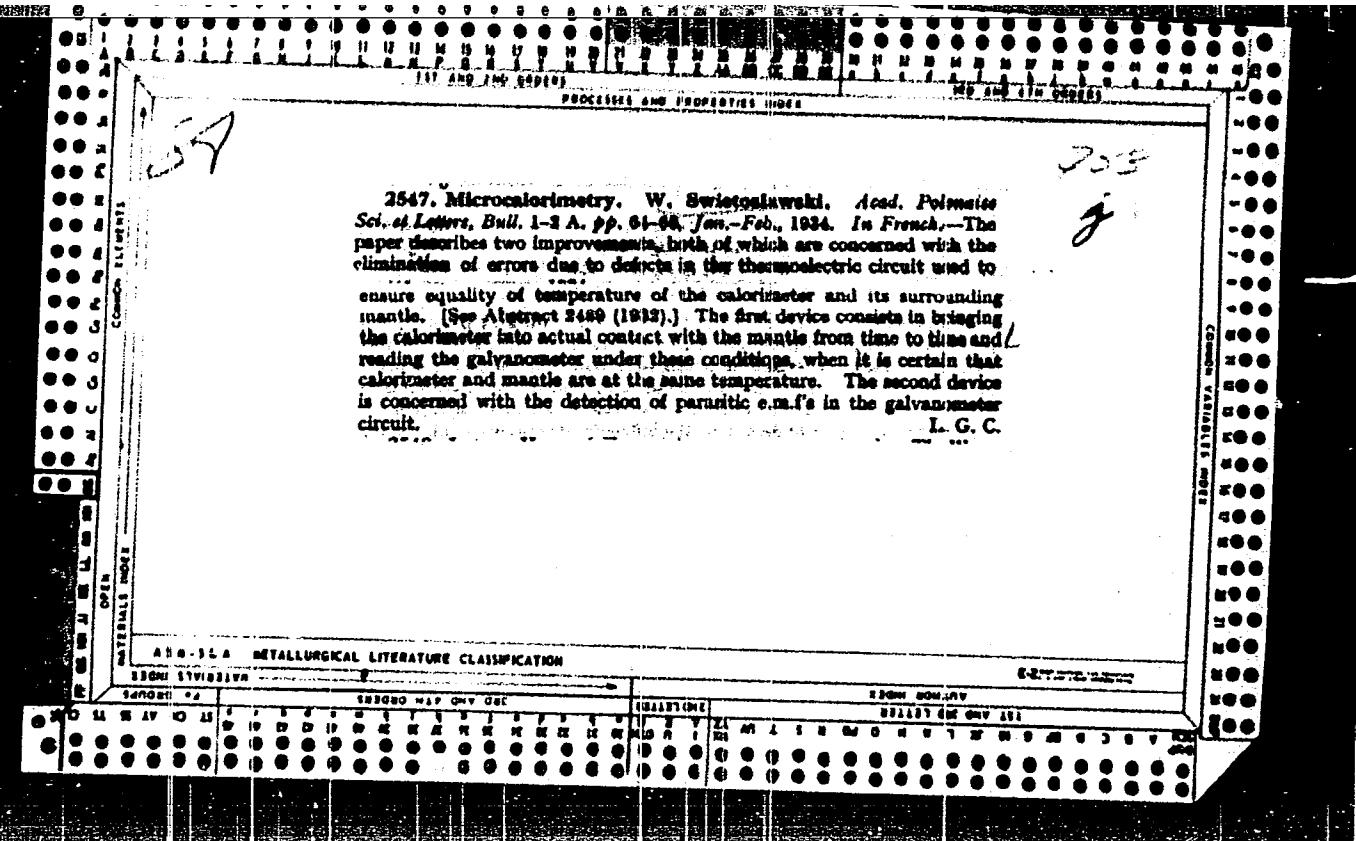


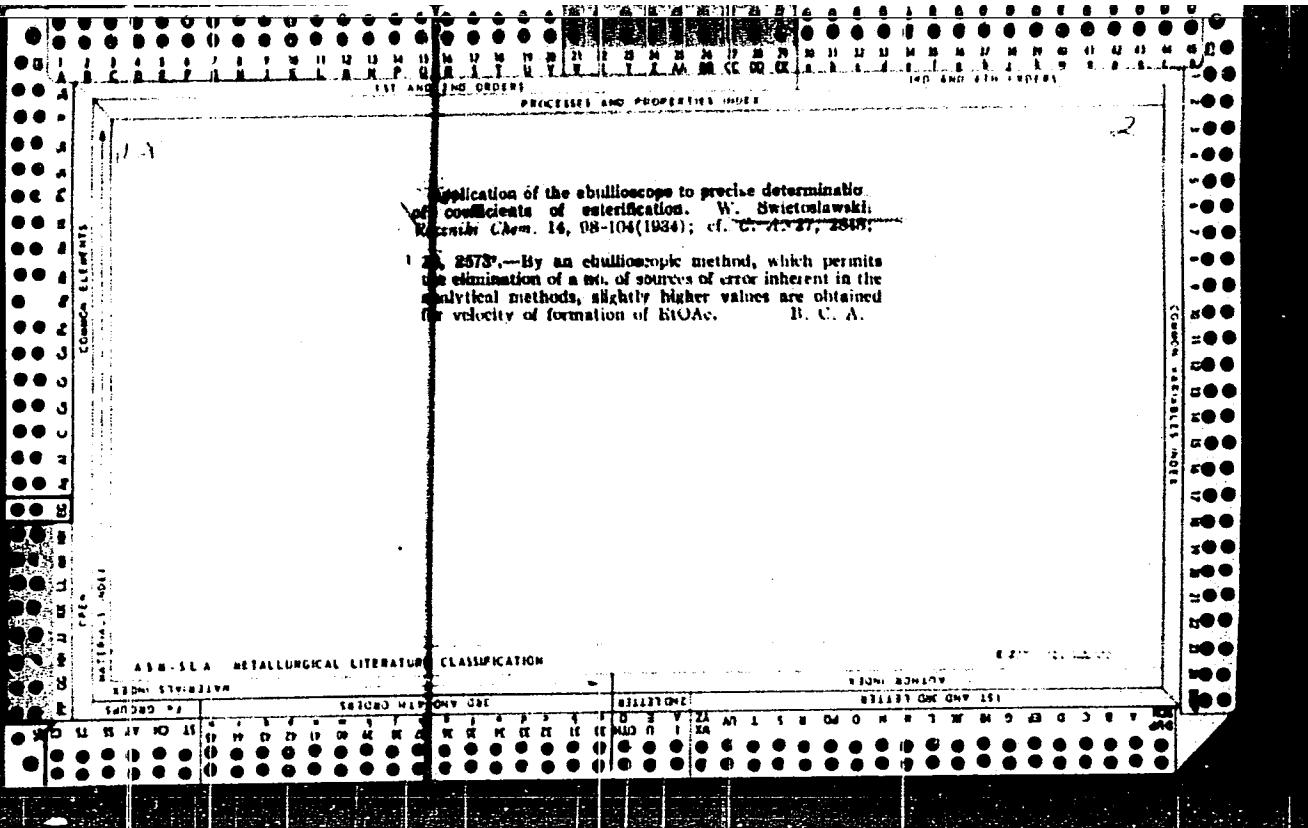


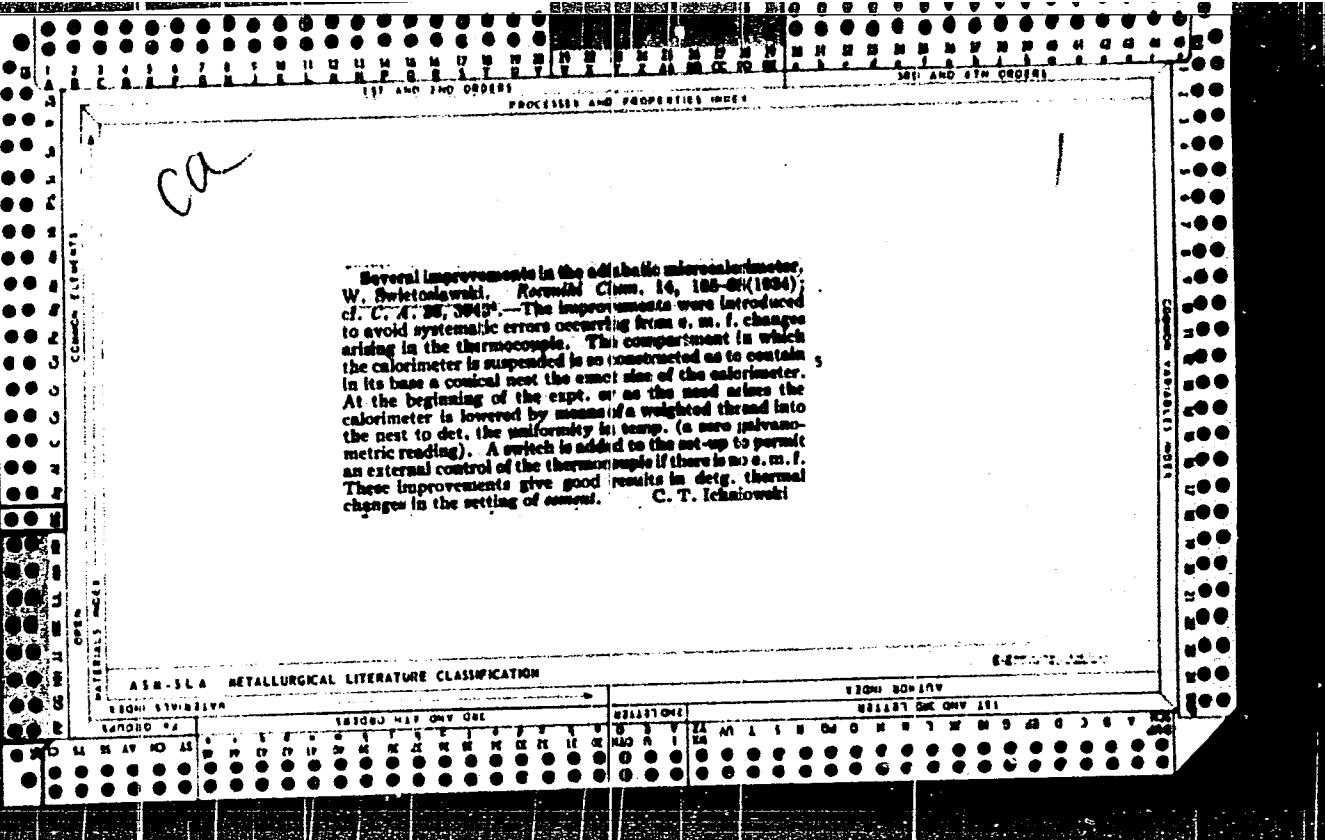


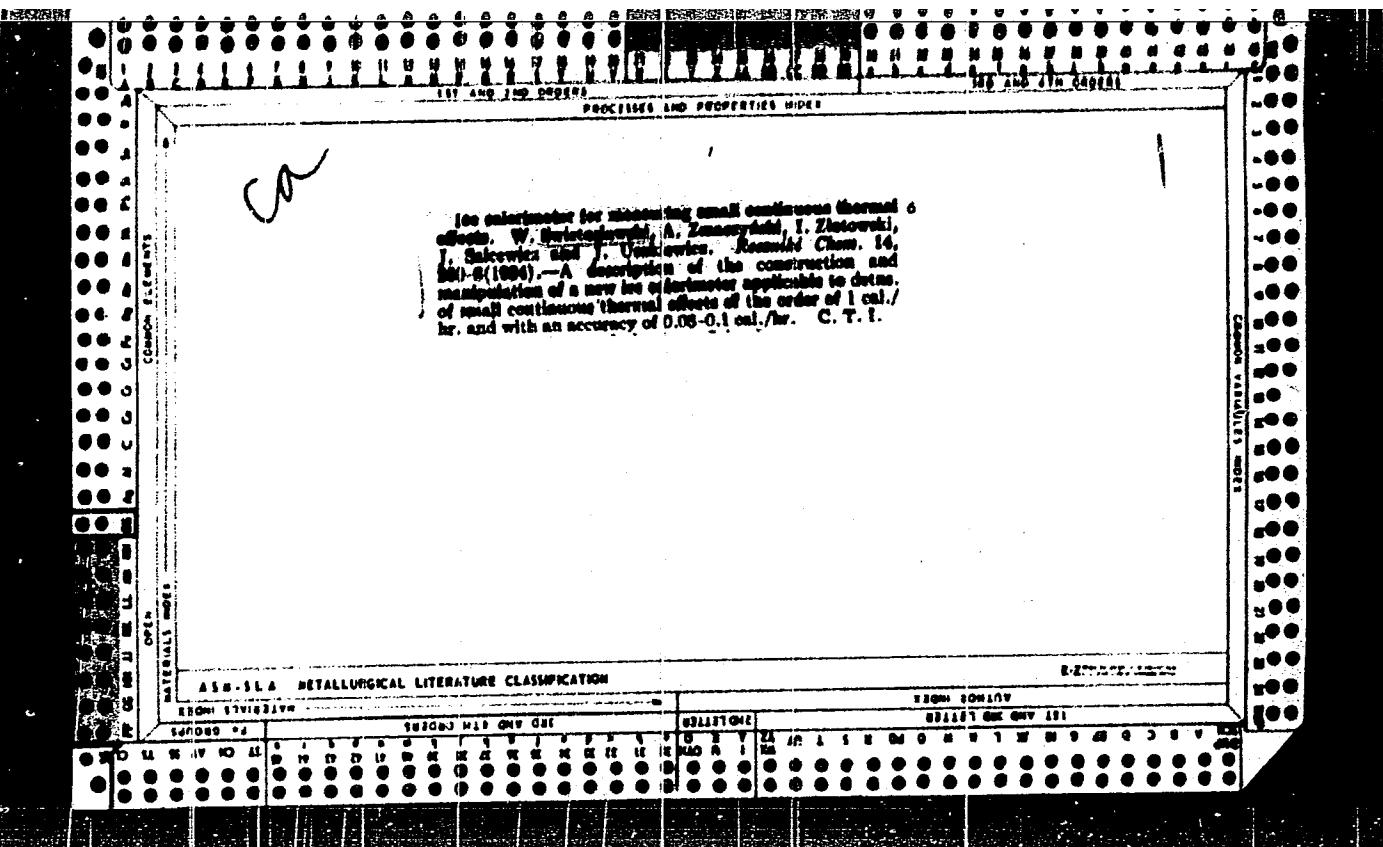






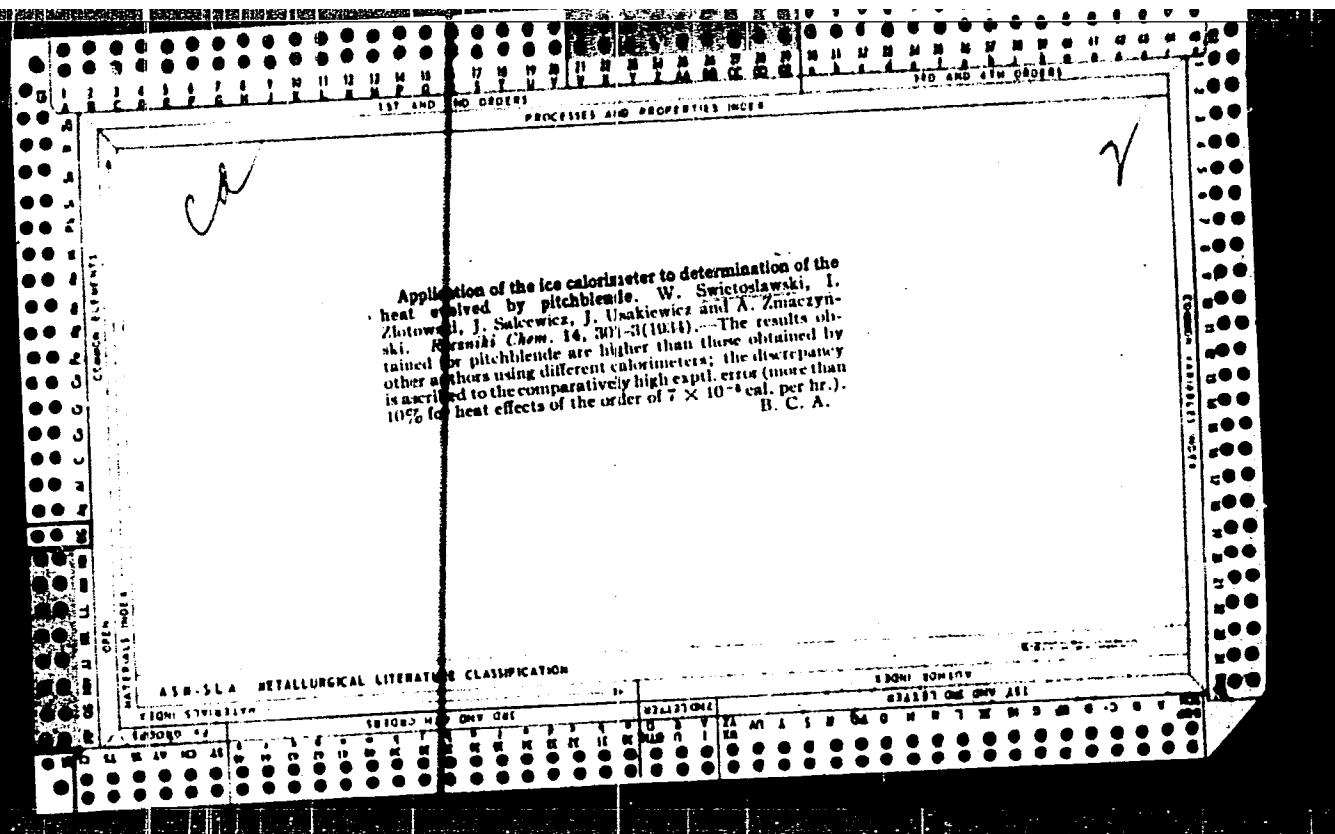


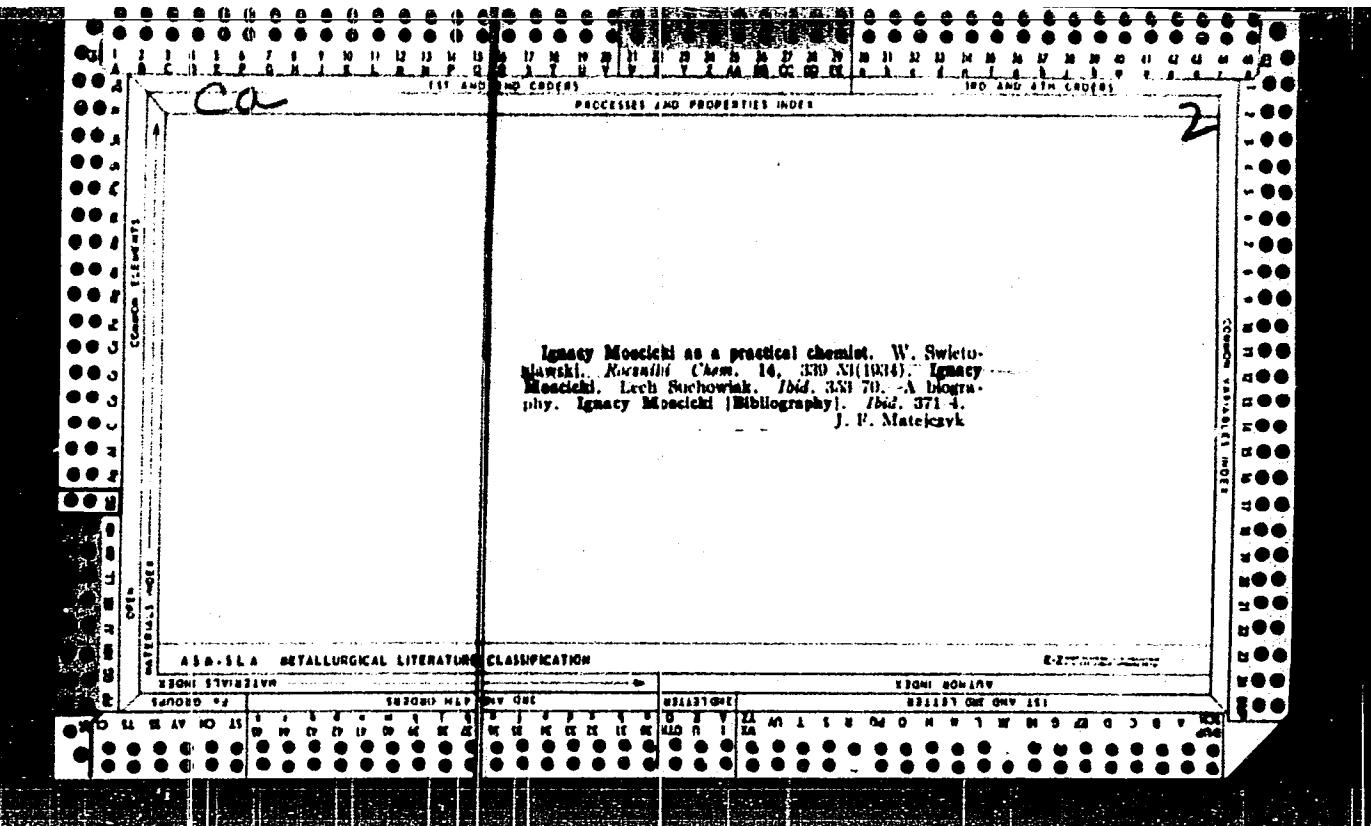




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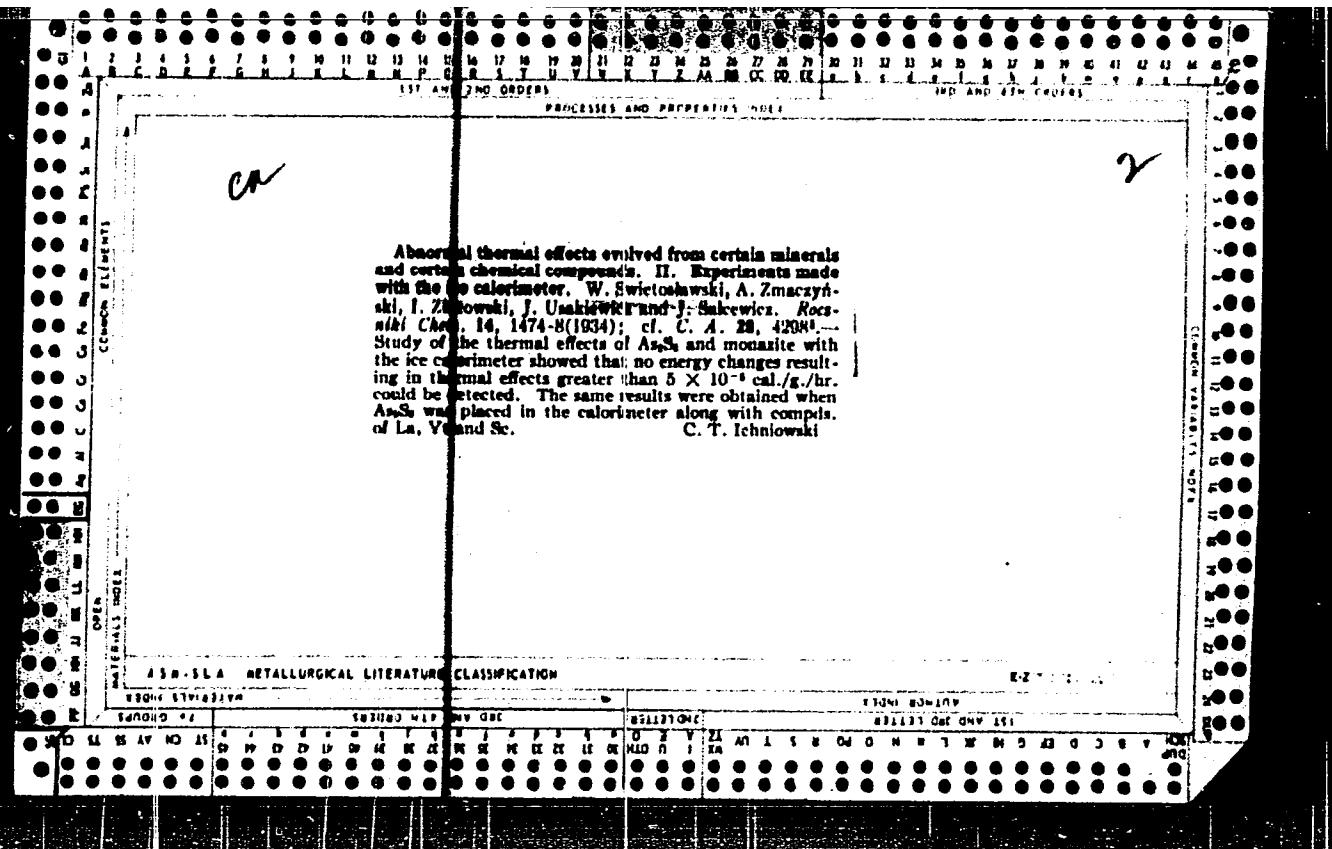


Ca

7

Application of V. Meyer's method to determination
of moisture content. W. Swiatołajski, H. Brzostowska
and M. Kukowski. *Roczniki Chem.* 14, xxx (1933).
The H₂O content of various products can be rapidly and
conveniently determined by measuring the vol. of vapor evolved
when the sample is heated at the appropriate temp. in a
modified V. Meyer app. B.V.A.

ASM ALA - METALLURGICAL LITERATURE CLASSIFICATION



CA

LAST AND TWO ORDERS

LAST AND ONE ORDER

PROCESSES AND PROPERTIES INDEX

21

Total quantity of vapors and gases evolved during the thermal decomposition of coal and of its petrographic varieties. W. Swietulawski and H. Brzustowska. *Przemysl Chem.* 18, 571-4 (1934).—The evolution of gases and vapors from coals of a low content of volatile constituents (I) (not more than 20%) proceeds at a const. velocity from 370° to 440° , above which it proceeds at a rate proportional to the temp.; the length of the period of const. evolution diminishes with increasing I , and is zero for gas-flaming coals. The vol. of gaseous products evolved from petrographic varieties diminishes in the order vitrain, durain, fusain. B. C. A.

RSN-SLA METALLURGICAL LITERATURE CLASSIFICATION

SOLID STATE PHYS.

THERM. & F.

SELECTED MISC. TOP. CAT.

E-ZY CLASSIFICATION

ADDITIONAL COMMENTS

OPTICAL

ELECTRON

X-RAY

NUCLEAR

INSTRUMENTS

TESTING

ANALYSIS

CHEM.

PHYS.

MAT.

STRUCTURE

IMAGING

CA

21

Permeability of metallurgical coke as a characteristic property. W. Swietodowski and M. Chorazy. *Przemysl Chem.* 18, 574-9 (1934).—The permeability (P = no. of cc. of N_2 passing per min. through 1 sq. cm. of coke under a pressure gradient of 1 mm. Hg) of coke from French coking coal is 243 and 132, from Westphalian coking coal 90 and 410, and from Silesian caking gas coal 10.7 and 42.7, resp., for samples taken from the center of the oven and from the vicinity of the walls. The P of coke from semicaking coal and pitch briquettes is 310, from peat semicoke and pitch briquettes 10, from peat briquettes 70, from unpressed peat 1443 and for alder charcoal 560. B. C. A.

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

GENERAL SUBJECT	INDUSTRIAL SUBJECT	EDITION
IRON & STEEL	IRON & STEEL	1940

GENERAL SUBJECT	INDUSTRIAL SUBJECT
IRON & STEEL	IRON & STEEL

CA

21

PROCESSES AND PROPERTIES INDEX

Production of semicoke and coke from noncaking coal.
I. W. Swietoslawski and M. Chomaz. *Pramyj Chem.*
18, 579-80 (1934).—The mech. properties of coke from
briquettes made from noncaking coals and pitch have
been studied with reference to the temp. and pressure of
briquetting, to the relative proportions of the constituents,
and to the type of coal taken. The permeability to gases,
combustibility, reactivity and mech. strength of coked
briquettes prep'd. under appropriate conditions may be
greater than that of Ruhr basin cokes. Raising the
pressure to greater than 150 atm. has little effect on the
mech. strength of the cokes.
B. C. A.

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

13041111111111111111

E-2

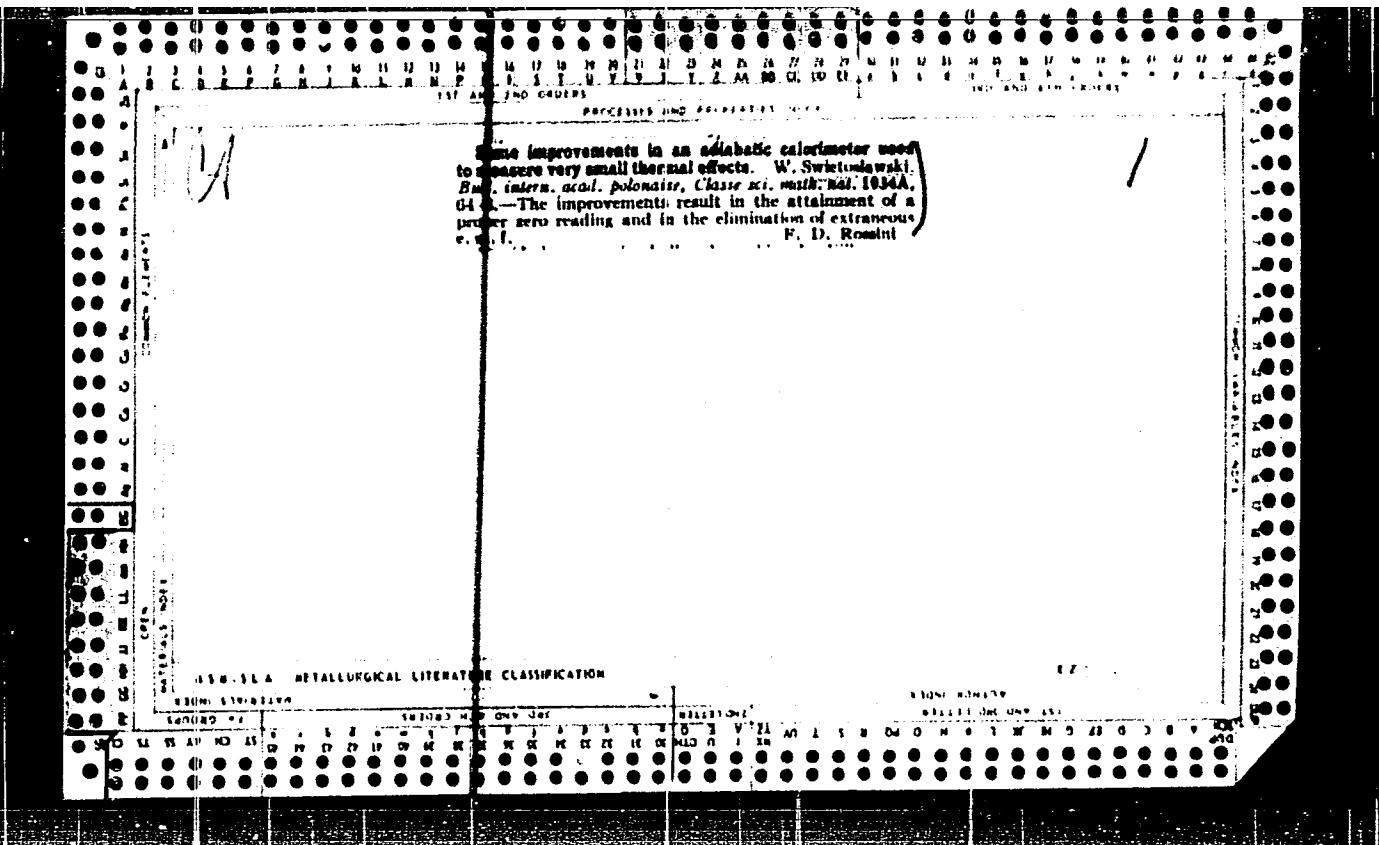
CA

PROCESSES AND EQUIPMENT INDEX

20

Heat setting of cement. W. Swietolawski and S. Rusinski. *Przemysl Chem.*, 18, 607-4 (1933); "The rate of evolution of heat on mixing cement with H_2O attains a max. value after a time characteristic of a given cement (8-15 hrs.)."
B. C. A.

ASH-SEA METALLURGICAL LITERATURE CLASSIFICATION



Con

Abnormal thermal effects produced by certain minerals
and certain chemical substances. I. Experiments made
with an adiabatic calorimeter. W. Swietoslawski and
E. Bartoszewicz. *Bull. intern. Acad. polonaise. Classe
sci. math. nat.* 1934A, 69-72.—Neither metallic Sb nor
As₂O₃ produces a thermal effect as large as 0.0005 cal.
per g. per hr.
P. D. Rossini

ASA-SLA METALLURGICAL LITERATURE CLASSIFICATION

S7001 119-82314

E 271.02

CM 7
The application of V. Meyer's method for determining moisture in solid substances. W. Świętosławski, H. Brzustowska and M. Krakowski. *Ann. inst. sci. tech. Varsovie* 1, 115 (1935); *Fuel* 14, 305-6 (1935); cf. C. I. 29, 6171.—Meyer's vapor-d. method was used to det. moisture in coals, cokes and tobacco. A detn. can be made in 10 min., and the results agree with those obtained by standard methods. D. A. Reynolds

ASH SLA METALLURGICAL LITERATURE CLASSIFICATION

EZ

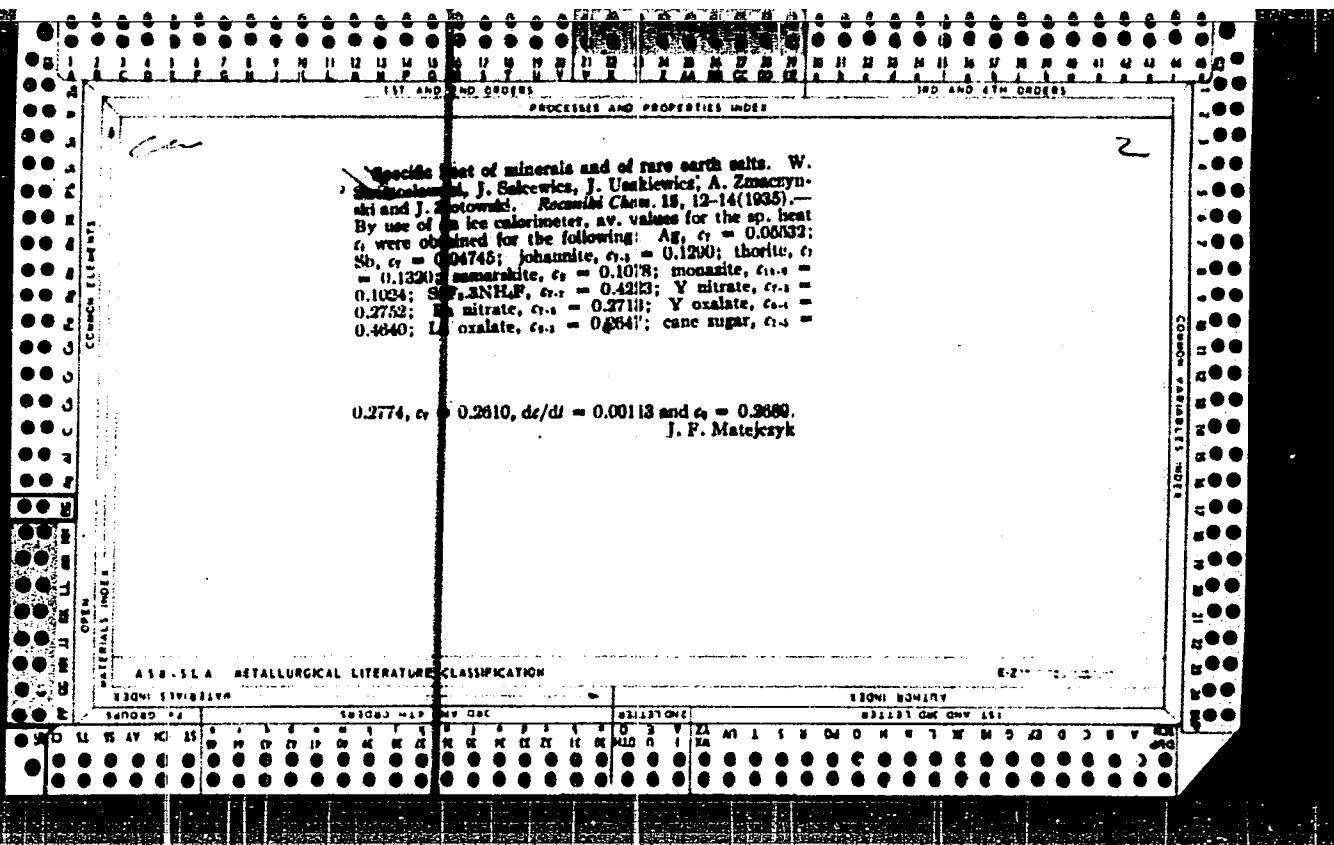
3750. Succinic Acid as Secondary Calorimetric Standard. W. Świecickiawski, M. Wojciechowski and E. Sapiro. *Acta Polonica Sci. et Lett.*, **Bull.** 9-10-11, pp. 531-539, Nov.-Dec., 1935. In English.—The universal ebulliosometer with several dephlegmators is applied to the determination of the quantity of water in a sample of succinic acid used by Keffler for thermochemical measurements. The amount of water in this sample was found to be only 0.003 %. The influence of the temperature on one-degree decomposition of succinic acid is studied when heated to 80° C.; the acid slowly decomposes the amount of water (after 8 hours heating in a closed tube), increasing to 0.004 %. When heated to 130° for 8 hours the water content attains 0.018 %, on heating to 180° C. the substance decomposes and becomes yellowish. [See Abstract 4250 (1934).]

AUTOMOBILES.

ASME METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 07/13/2001

CIA-RDP86-00513R001654220005-6"



A new type of calorimeter for the measurement of continuous heat effects. W. Swietoslawski. Roczniki Chem. 15, 345-9 (in French 344-50) (1935).—A flow calorimeter suitable for the det. of such continuous heat processes as the hardening of cement is described. In principle the calorimeter consists of a labyrinth of concentric tubes through which water or other calorimetric liquid circulates from the outside to the middle, to avoid loss of heat. The system evolving heat is placed in the central portion and the temp. of the liquid at the entrance and exit are measured. The effect is caclcd. from the temp. difference and the amt. of liquid flowing. M. W.

ASIN-11A METALLURGICAL LITERATURE CLASSIFICATION

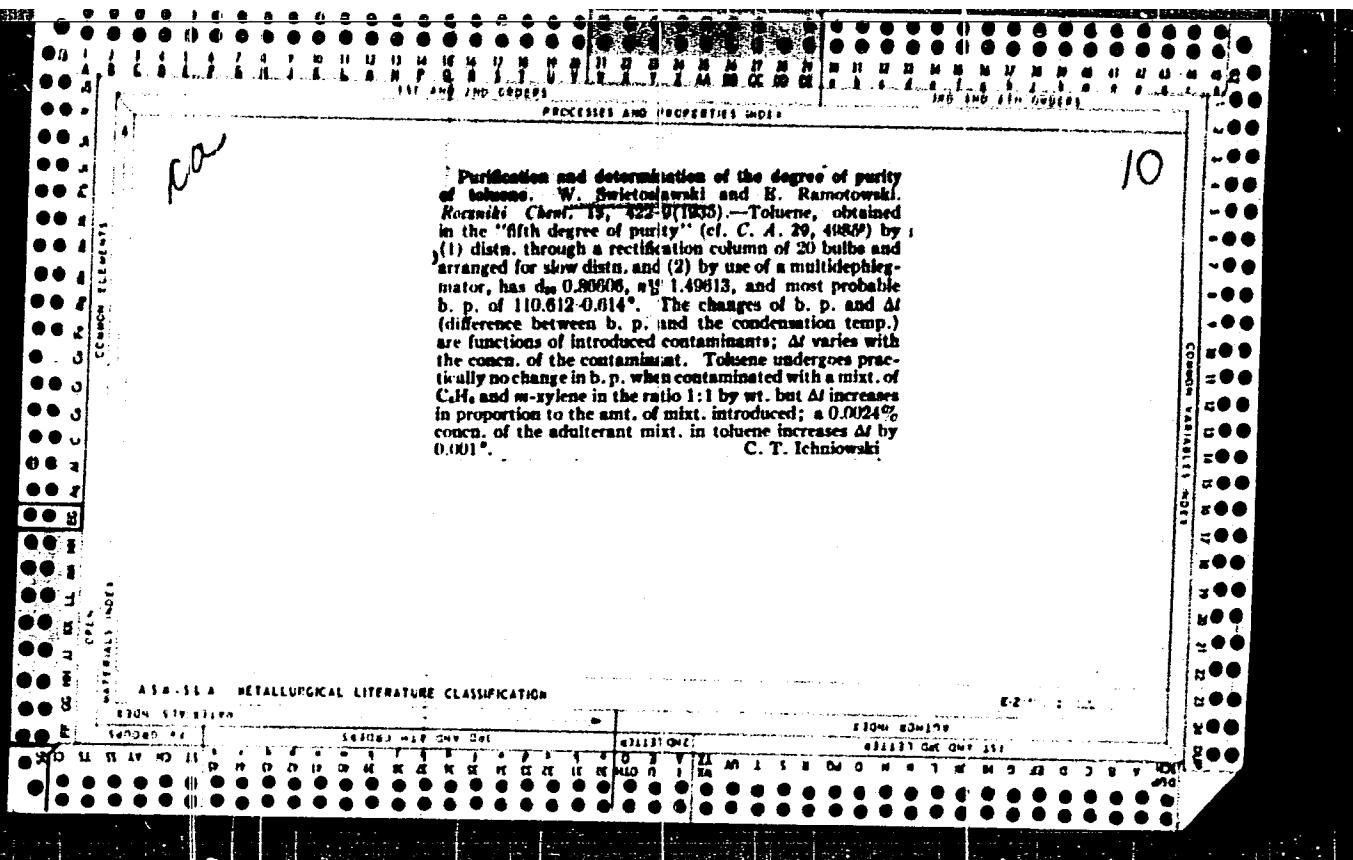
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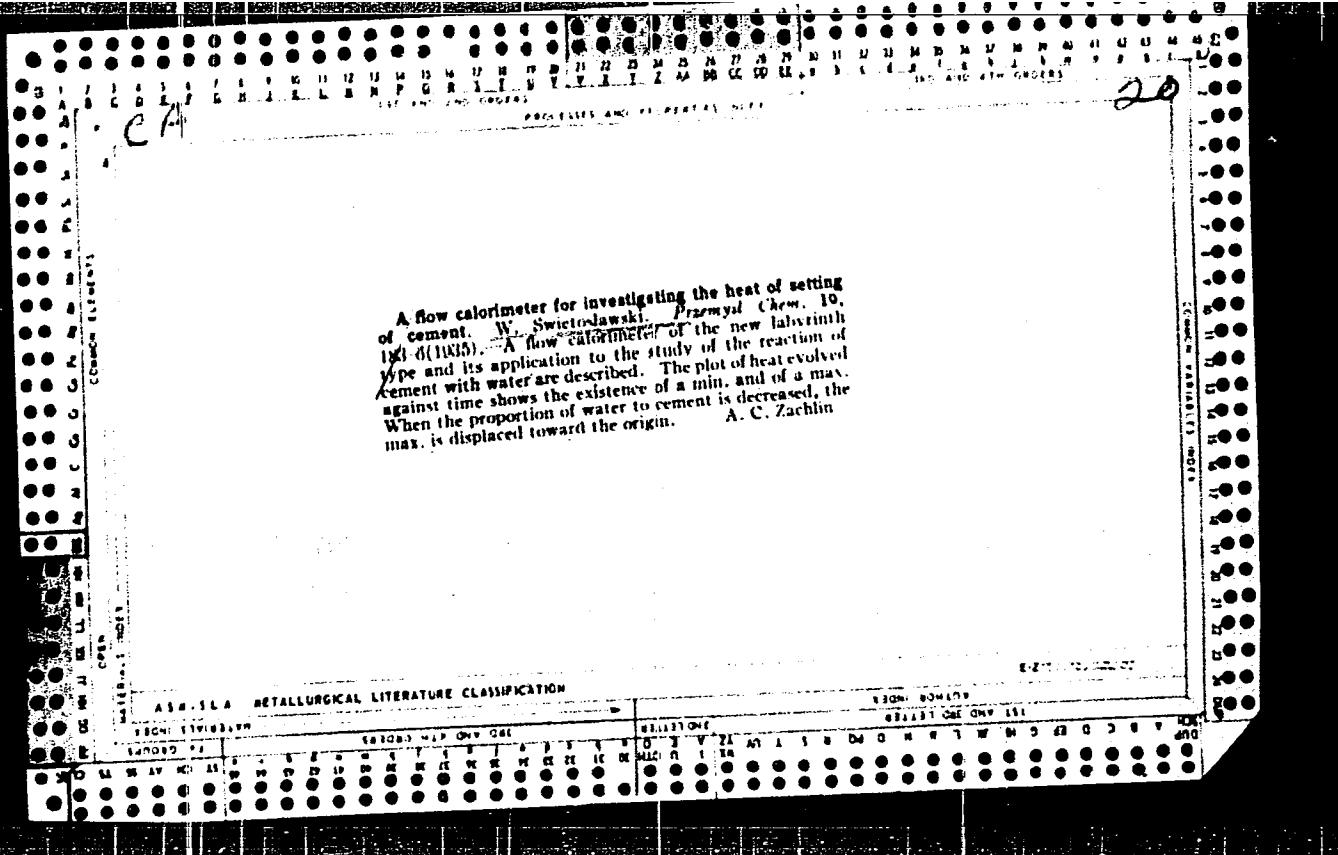
EXCERPT HELP ONLY USE

SECTION ONE

SECTION TWO

SECTION ONE ONLY USE





ca

7

The determination of small quantities of water in solid organic substances. W. Strycławski and S. Miernik. *Bull. intern. acad. polonaise, Classe sci. math. nat.* 1935A, 23, 8. - An improved universal ebulliometer (U. S. 25, 236) with one dephlegmator is described. When an absolute anhyd. solid, such as PhCO₂H, is added to an azeotropic mixt. of C₆H₆ and EtOH in the ebulliometer the temp. of condensation, *t*, at the top of the dephlegmator is not affected. However, if there is any H₂O in the solid, *t* will drop. The procedure is to det. *t* for the azeotropic mixt., add a known wt. of solid, det. *t* again, and then add known wts. of H₂O dissolved in C₆H₆ and EtOH, detg. *t* each time. At per mg. H₂O can now be calcd. and from the drop in *t* when the solid was added the percentage of H₂O in the solid is calcd. By using over 16 g. of solid as little as 0.001% H₂O can be detected. Some results were: com. PhCO₂H, 0.13% H₂O; PhCO₂H, Merck, for calorimetry, 0.016%; same, dried over P₂O₅, 0.003%; same, heated to b. p. *in vacuo*, 0.002%; com. salicylic acid, 0.050%. John R. Millbery

ASSISTANT METALLURGICAL LITERATURE CLASSIFICATION

CLASS NUMBER

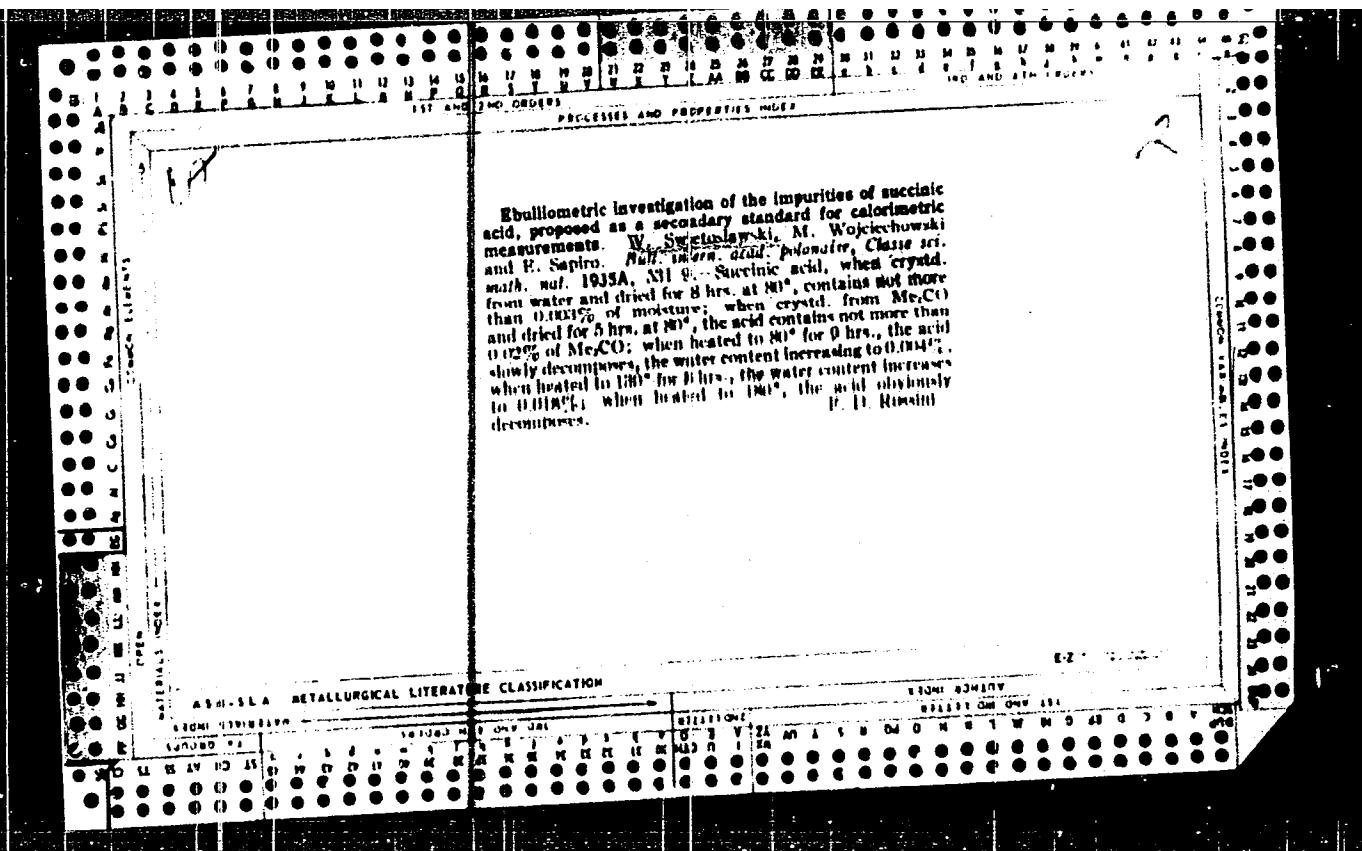
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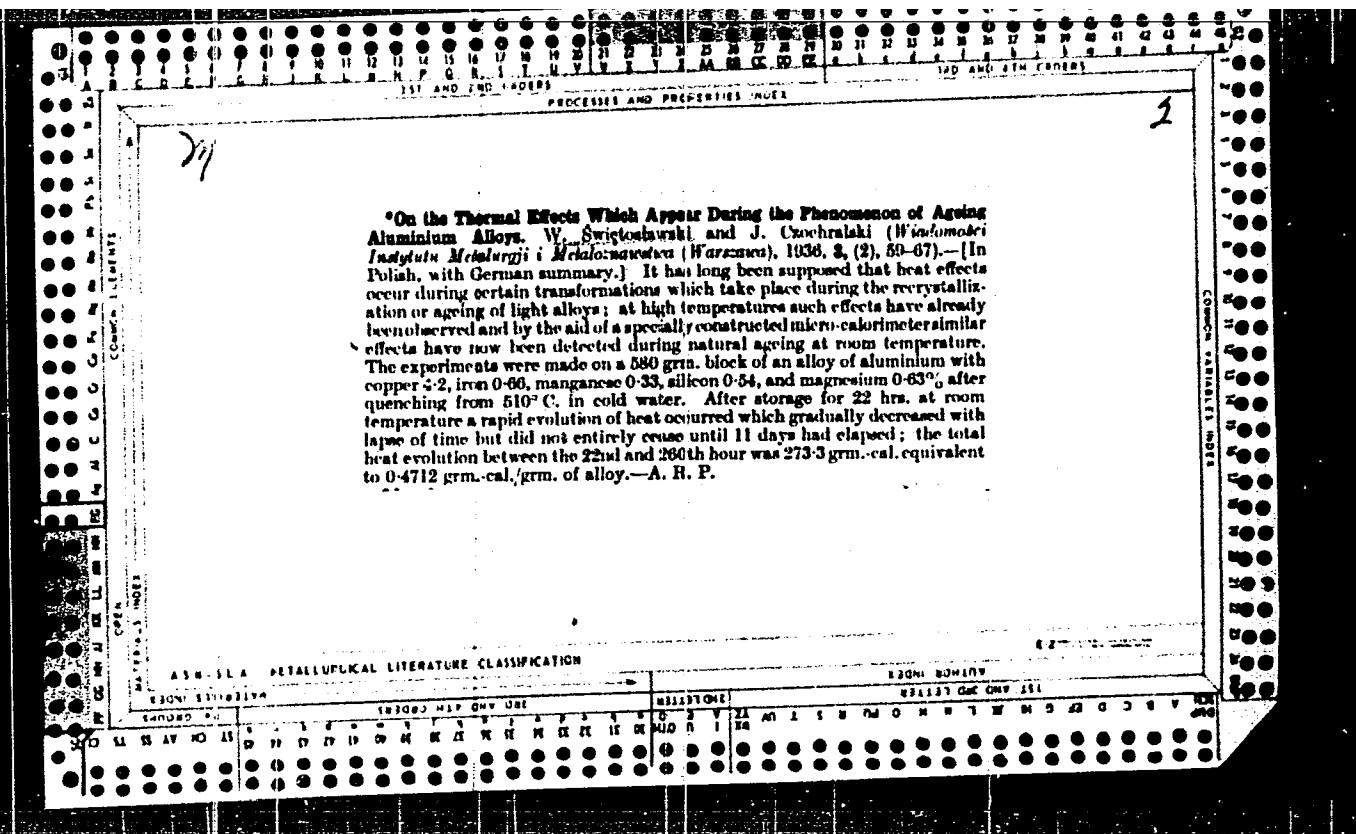
7

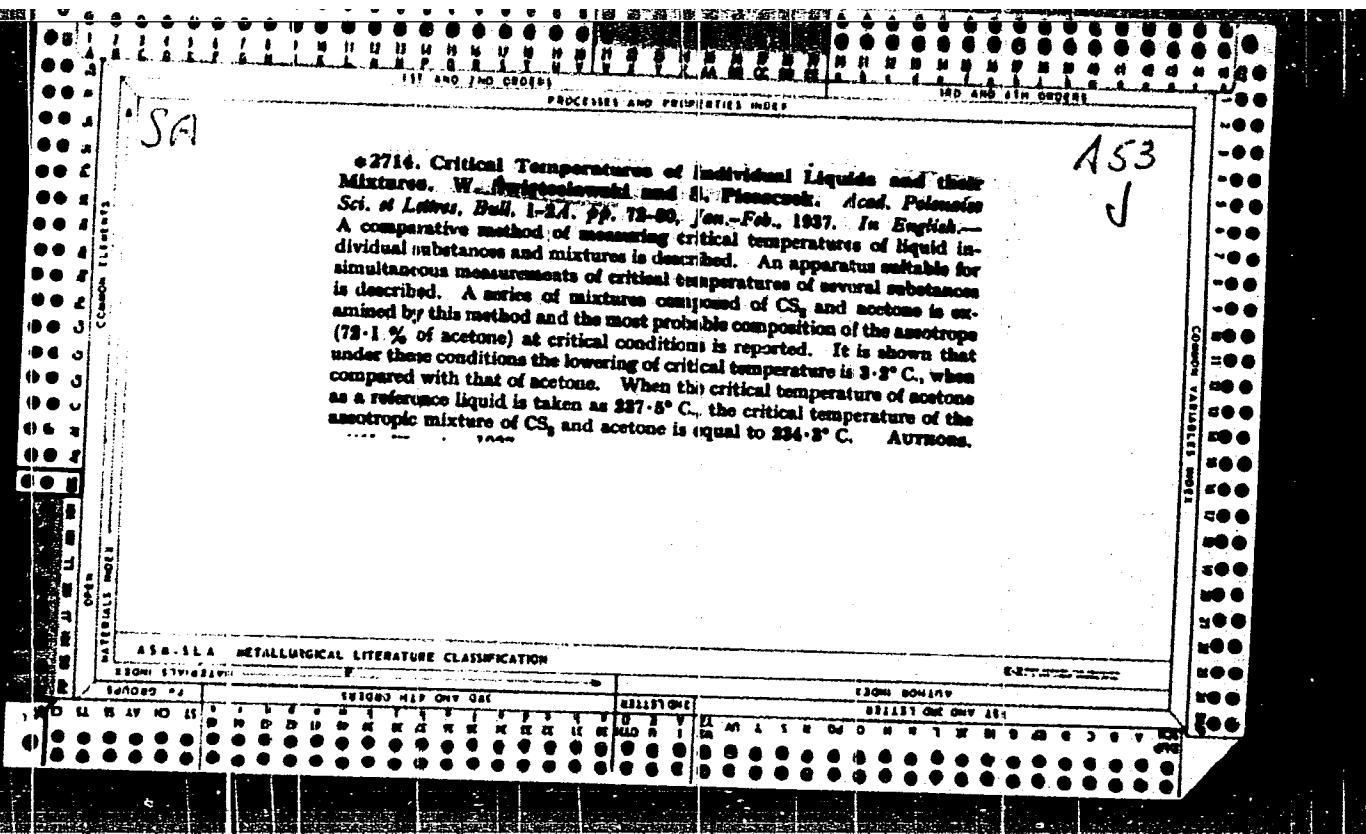
Ebulliometric measurements of the moisture content in standard benzoic acid. W. Swietulawski, M. Wojciechowski and S. Mieruk. *Bull. intern. Acad. Polonaise, Classe sci. math. nat.* 1935A, 59-64; cf. preceding abstract.—A somewhat more complicated app. was used in this case than in the preceding. The ebulliometer had 2 dephlegmators. A sample of standard benzoic acid (sample 48-a, prep'd. by the Bureau of Standards at Washington) was found to contain 0.0047 ± 0.0008% H₂O. A pellet of PhCO₂H contg. 0.002% H₂O was placed in satd. H₂O vapor at 27° for 3 hr., after which it was found to contain 0.012% H₂O. Therefore, the error in calorimetric detns. caused by the absorption of H₂O on the PhCO₂H pellet while the bomb is being prep'd. (15-30 min.) is not over 0.1 cal. and may be neglected.

John E. Milbery

ASME-AIA METALLURGICAL LITERATURE CLASSIFICATION

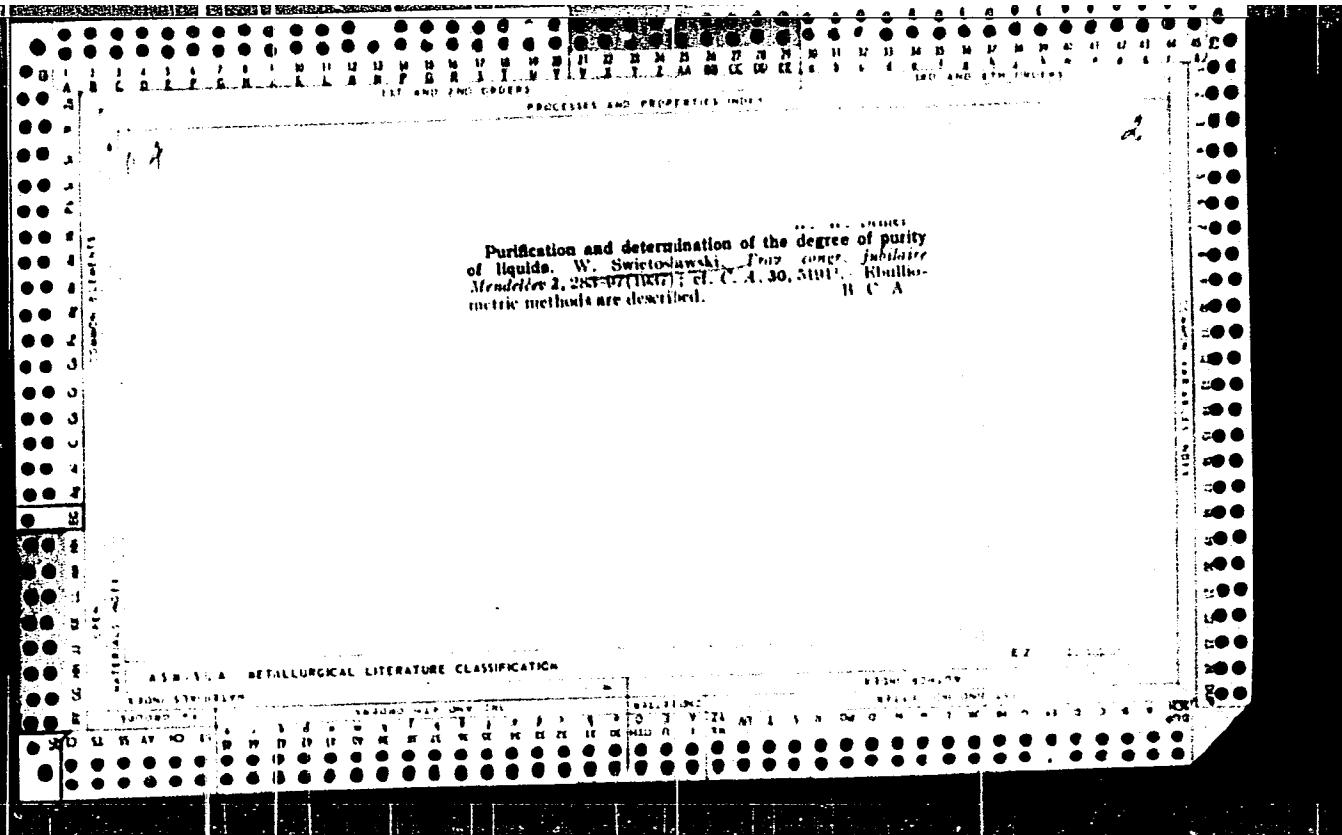






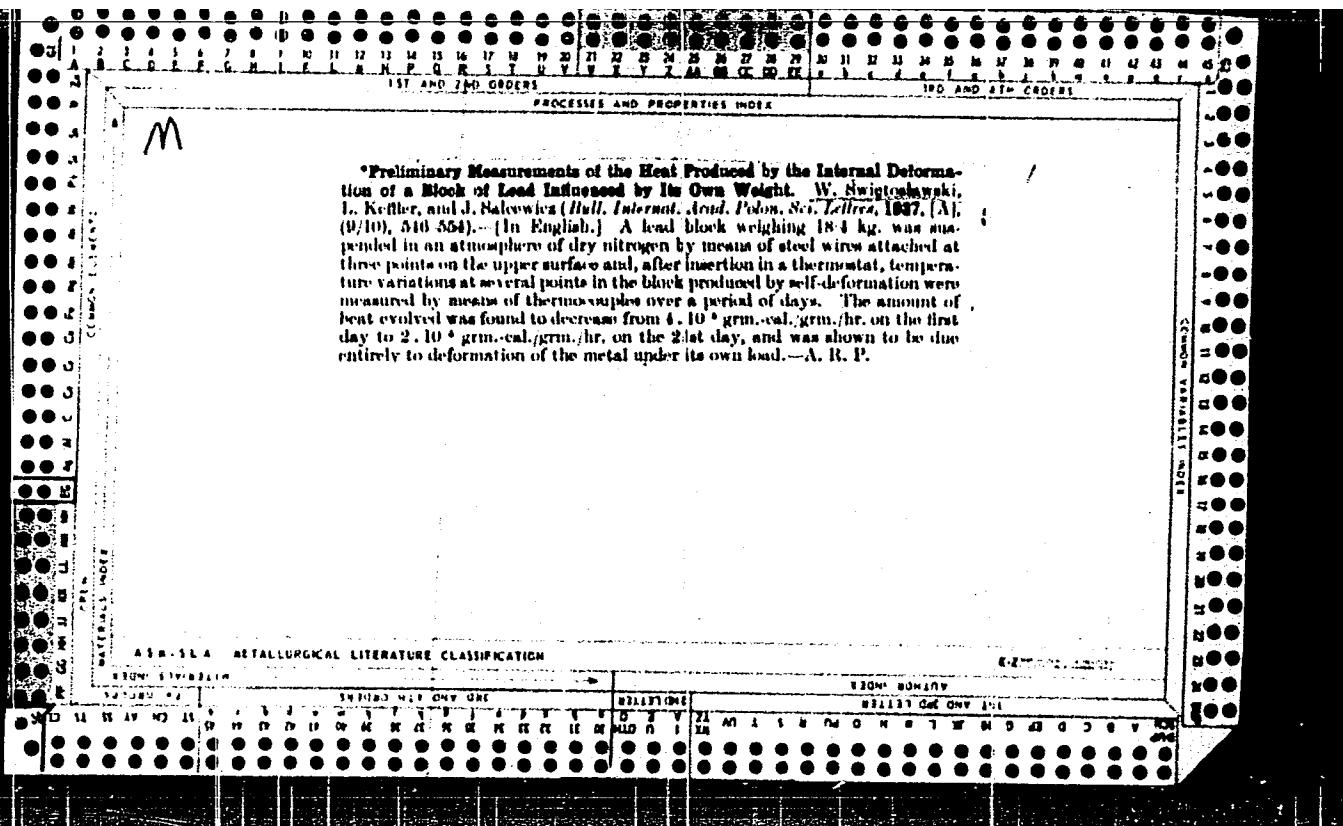
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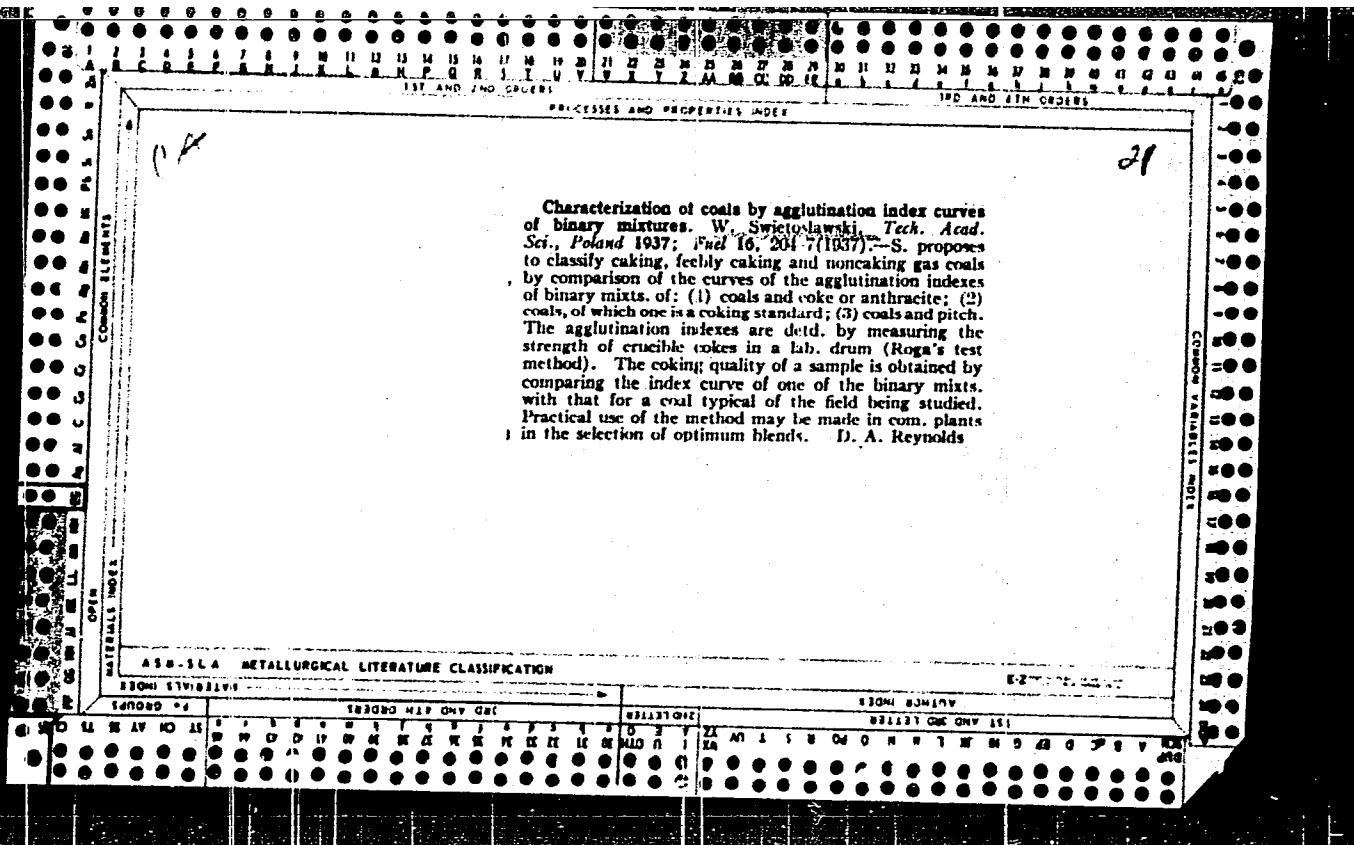
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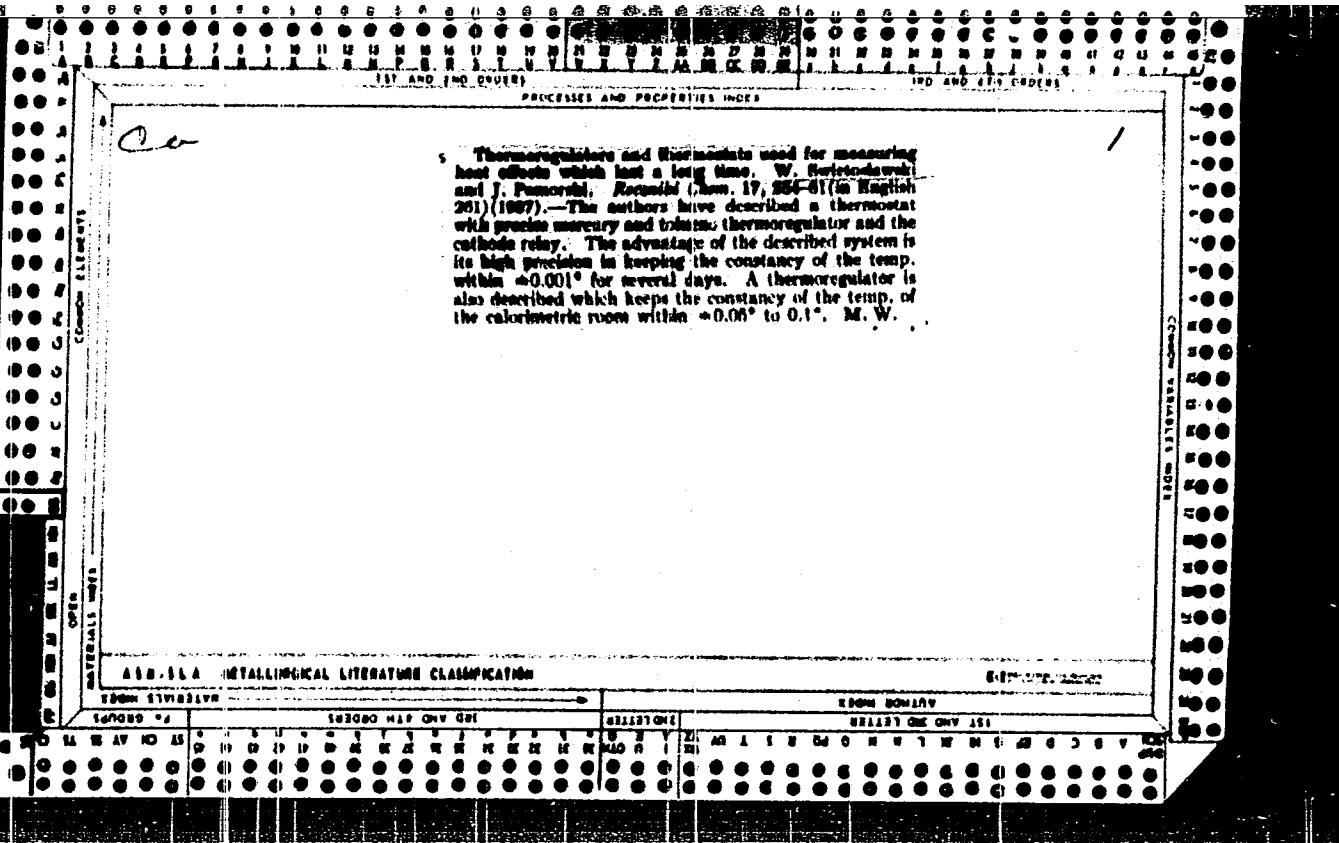


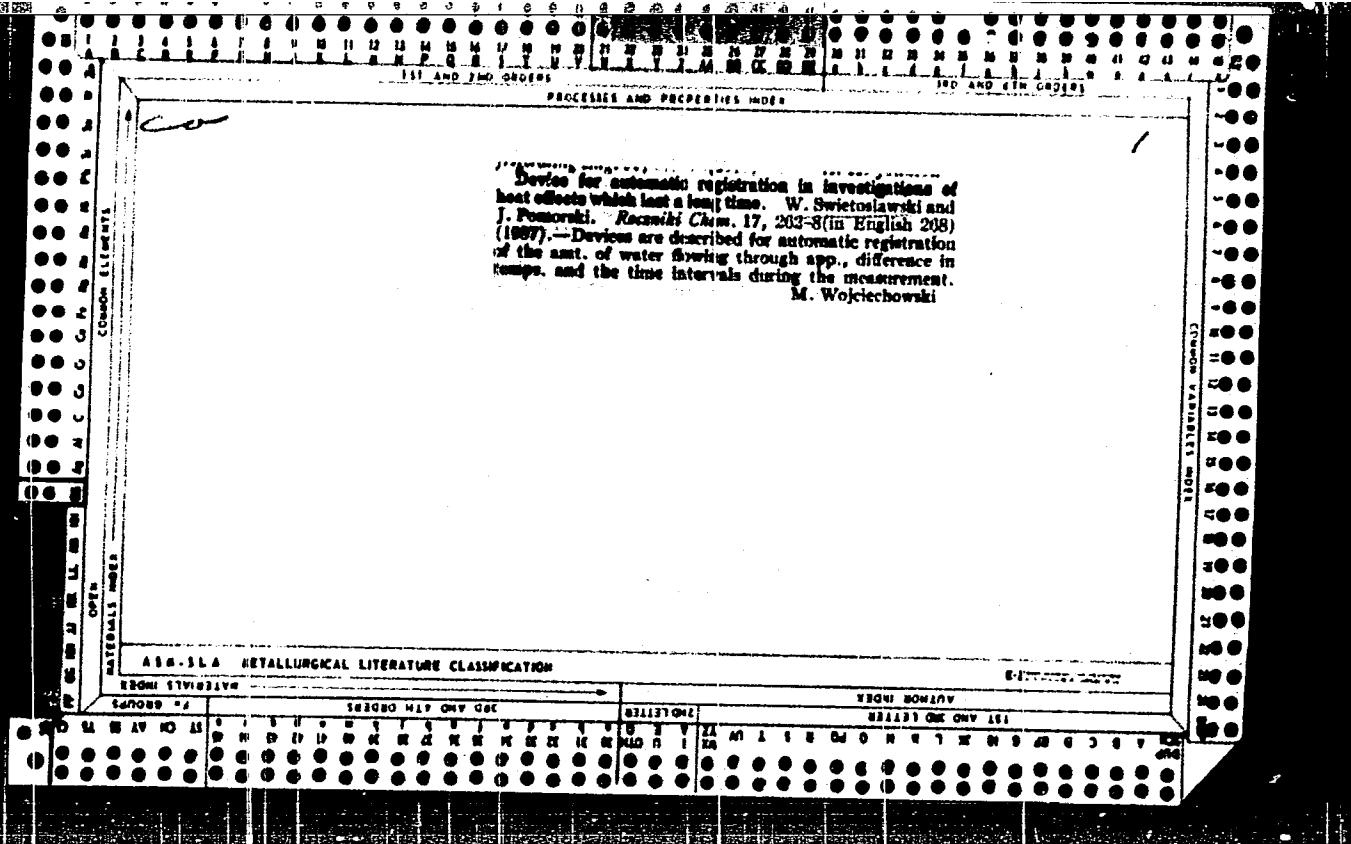


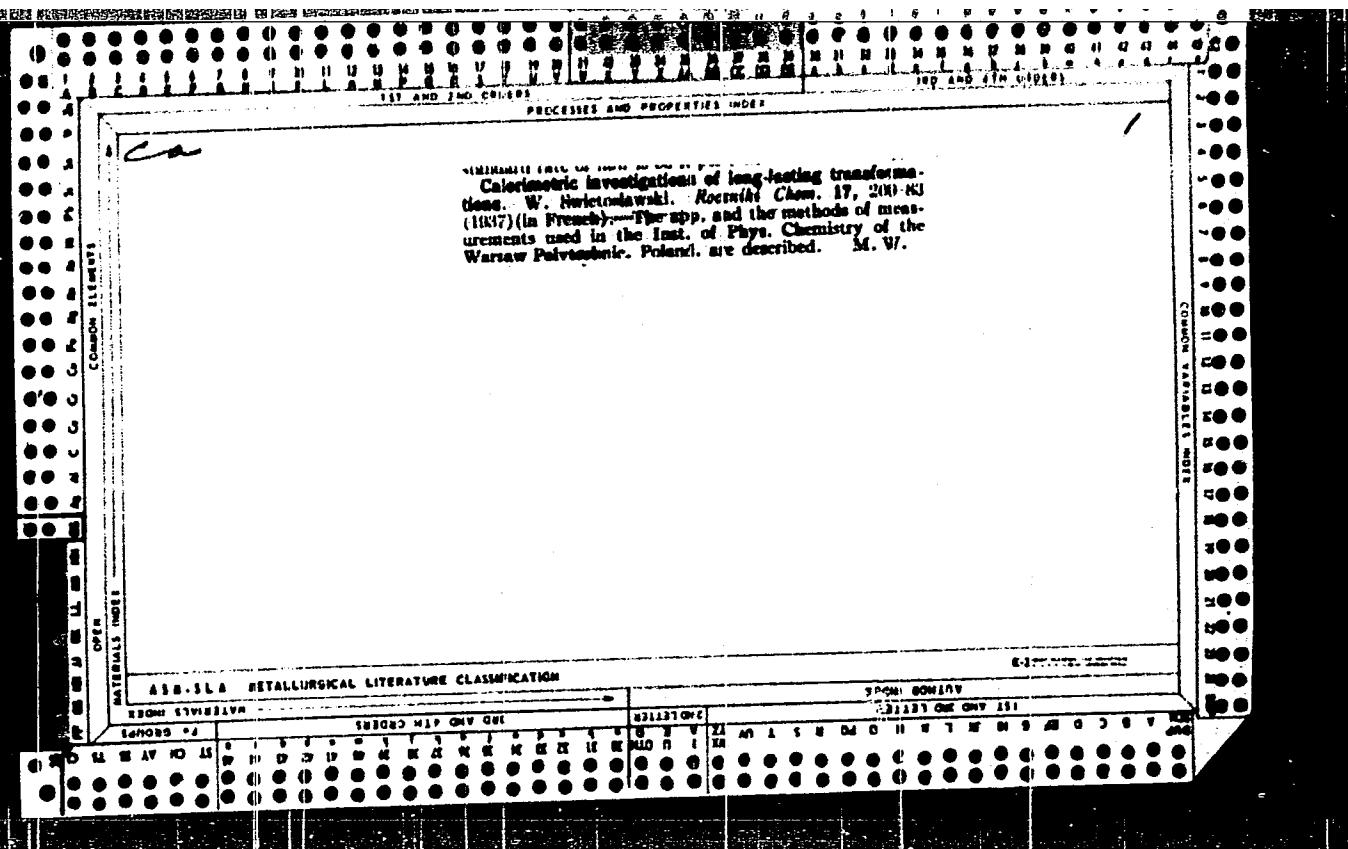
Effect of expansion of vapors on the efficiency of distillation. W. Wolechowski and R. Ramotowski. *Moszna Chem.* 19, 201-4 (in French 207-8) (1937). Adiabatic expansion has a great effect on the efficiency of distil.
M. Wolechowski

ABE-SLA METALLURGICAL LITERATURE CLASSIFICATION

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24
Calorimetric studies of thermal transformations of nitrocellulose powders. W. Swietoslawski, T. Urbanski, H. Calus and M. Rosinski. Roczniki Chem. 17, 444-53 (in English 462-3) (1937).—A calorimeter devised for measuring very small heat effects evolved in processes of long duration was used. Old nitrocellulose powder after previous heating to 75° showed a heat effect, which slowly disappeared; after a second heating to 75° the process of decompr. proceeded with increasing velocity. Freshly prep'd. gun powder showed a very small heat effect, which disappeared after some time; a second exposure to the air caused its reappearance. Further contact with air or even with oxygen caused the heat effect to disappear.
M. Welickowski

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

EX-REF ID: A2005

21

Agglutinating ability of coal or rosin in two- and three-component systems containing other coals or neutral diluting media. W. Swietomlawski and G. Hanke. *Przemysl Chemiczny*, 31, 103-107 (1957).¹¹ Use of the tumbling method of Ruge (cf. C. A. 26, 4440) for evaluating the strength of samples of coke prep'd. by the crucible method a series of two- and three-component mixts. was investigated in which agglutinating coal or resin was the plastic and binding material, and anthracite, coke or non-agglutinating gas coals were the diluents. In all cases the relationship between the agglutinating value of the mixt. and the excess. of the binding materials was defd. Generally with the greater concn. of agglutinating coal pos. deviations from the mech. strength of the mixt. calcd. on the basis of the additive principle appeared in both the two- and the three-component mixts. Neg. deviations from such values appeared when the proportions of diluents were very great, and especially when the mixt. consisted of very slightly agglutinating coal with coke or anthracite. The addn. of rosin to agglutinating coals acted adversely on the strength of coke, but its addn. to slightly agglutinating coals resulted in a gain in strength. While the results do not necessarily reflect the results which would be obtained if the given mixt. were put into a

coke oven they nevertheless give an indication of the method of choosing the components whose properties in a mixt. do not obey the additive law. A. C. Zechlin

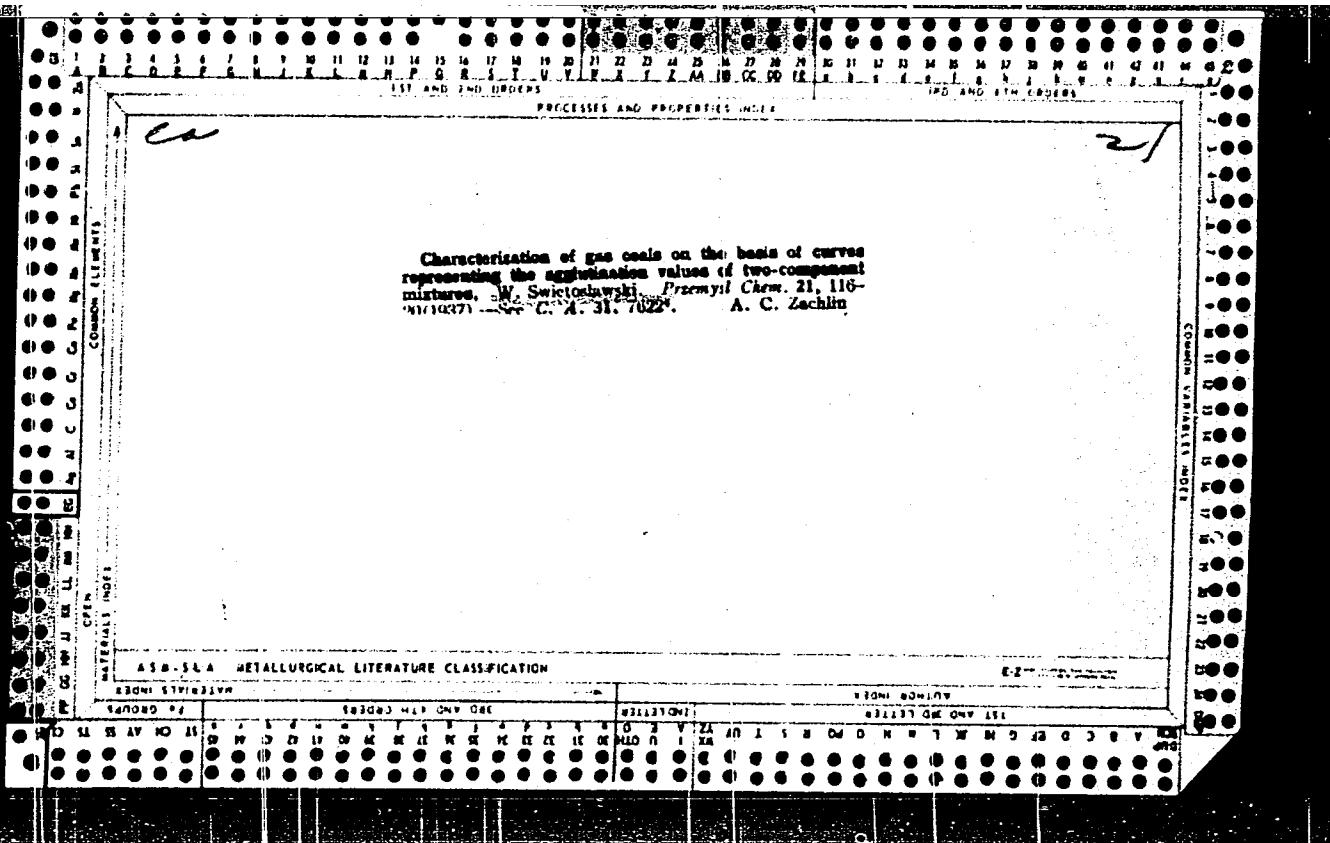
ASM-LLA METALLURGICAL LITERATURE CLASSIFICATION

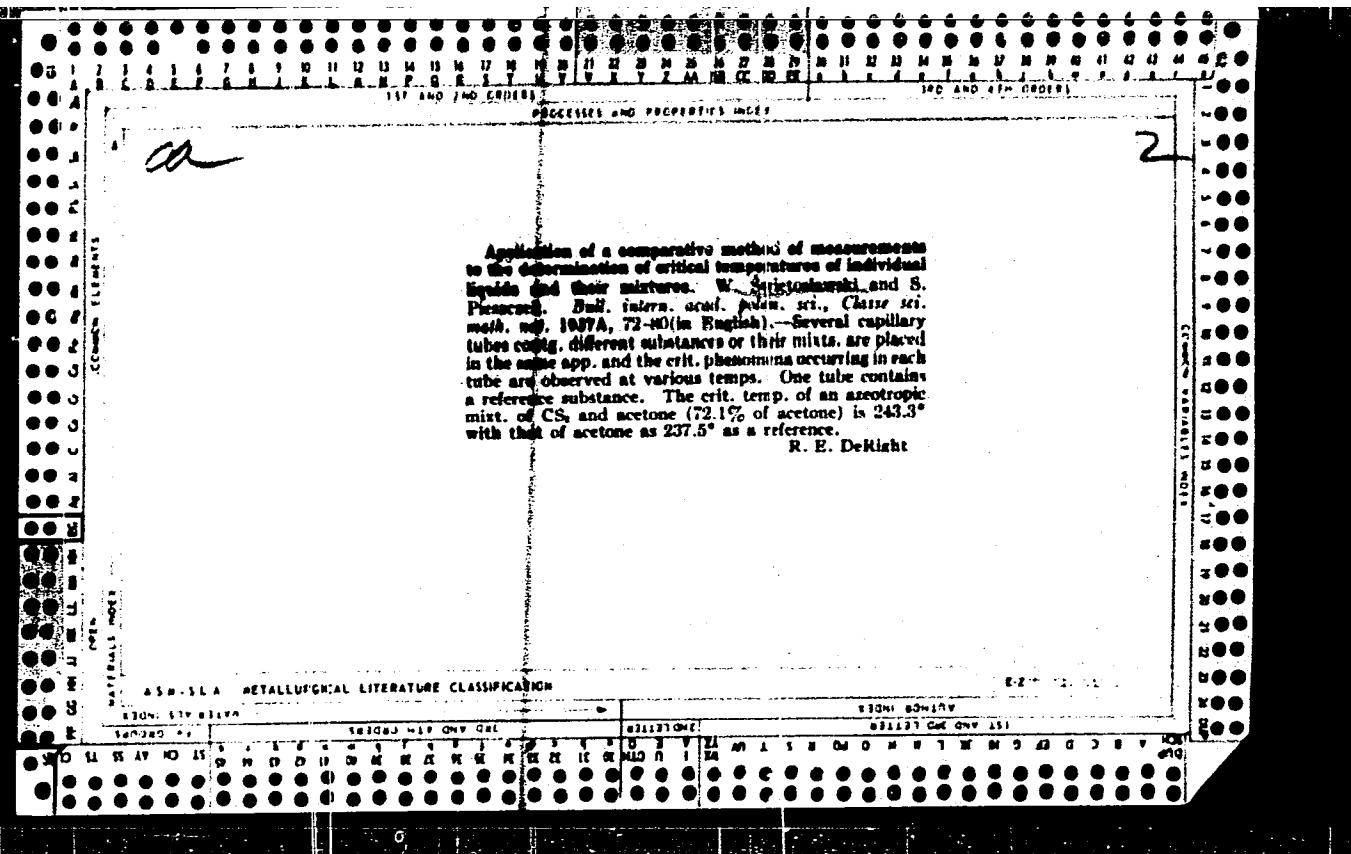
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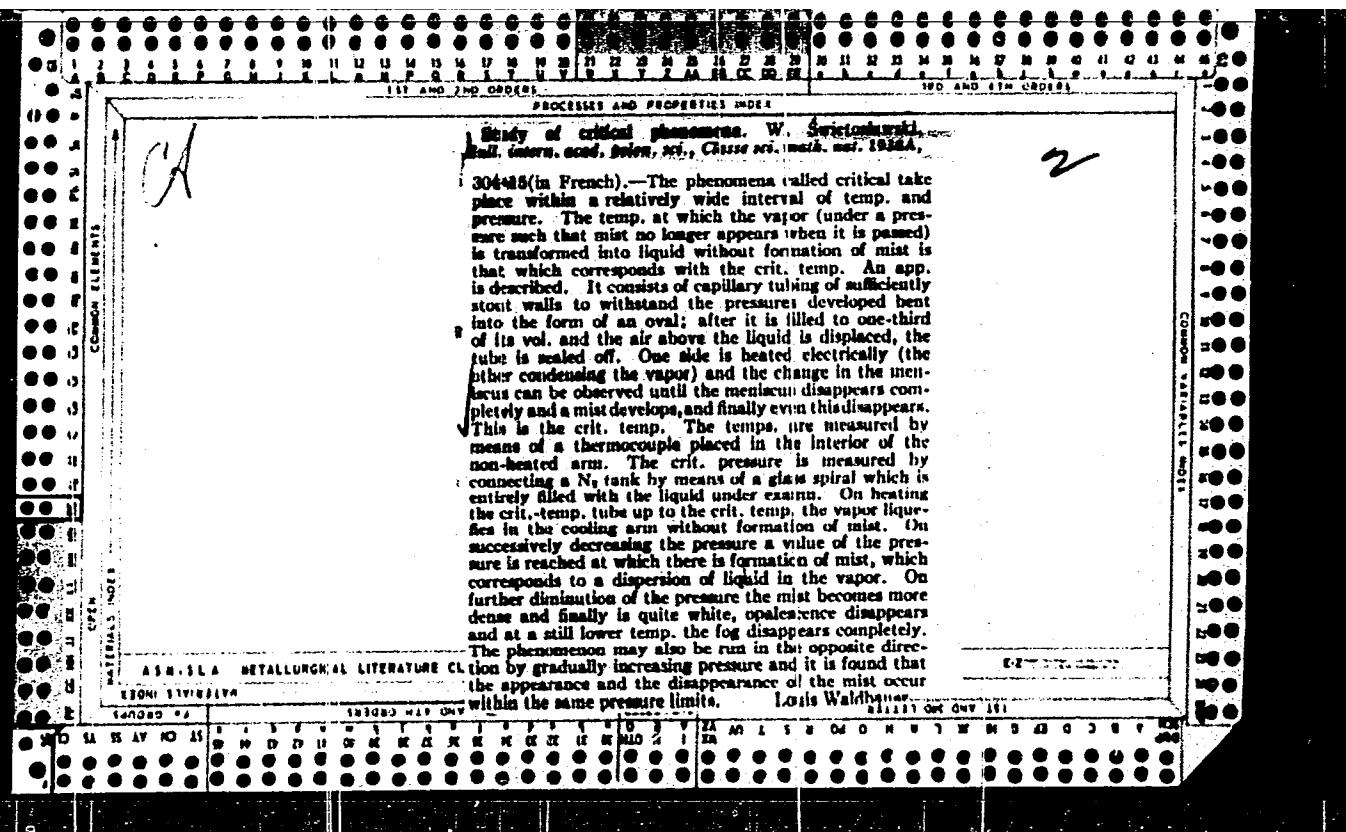
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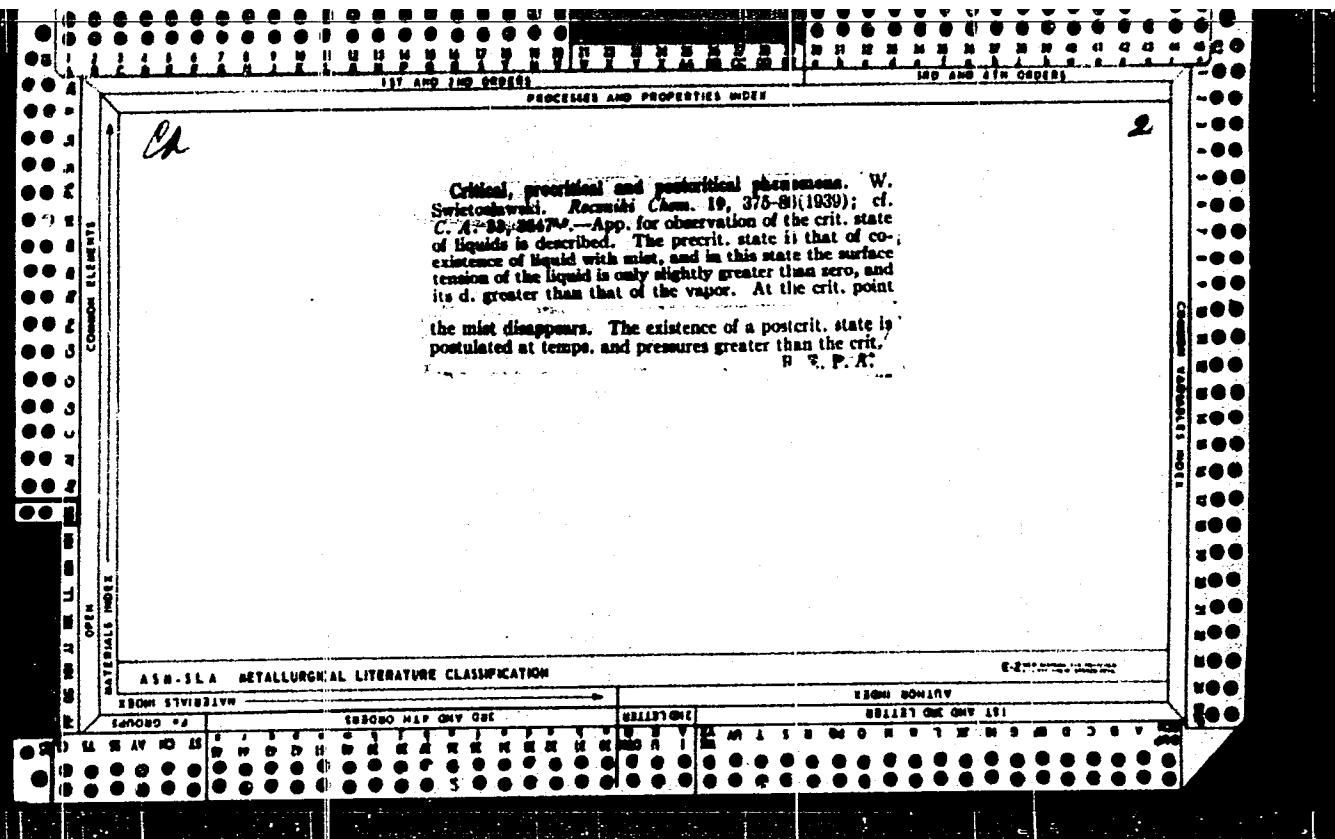
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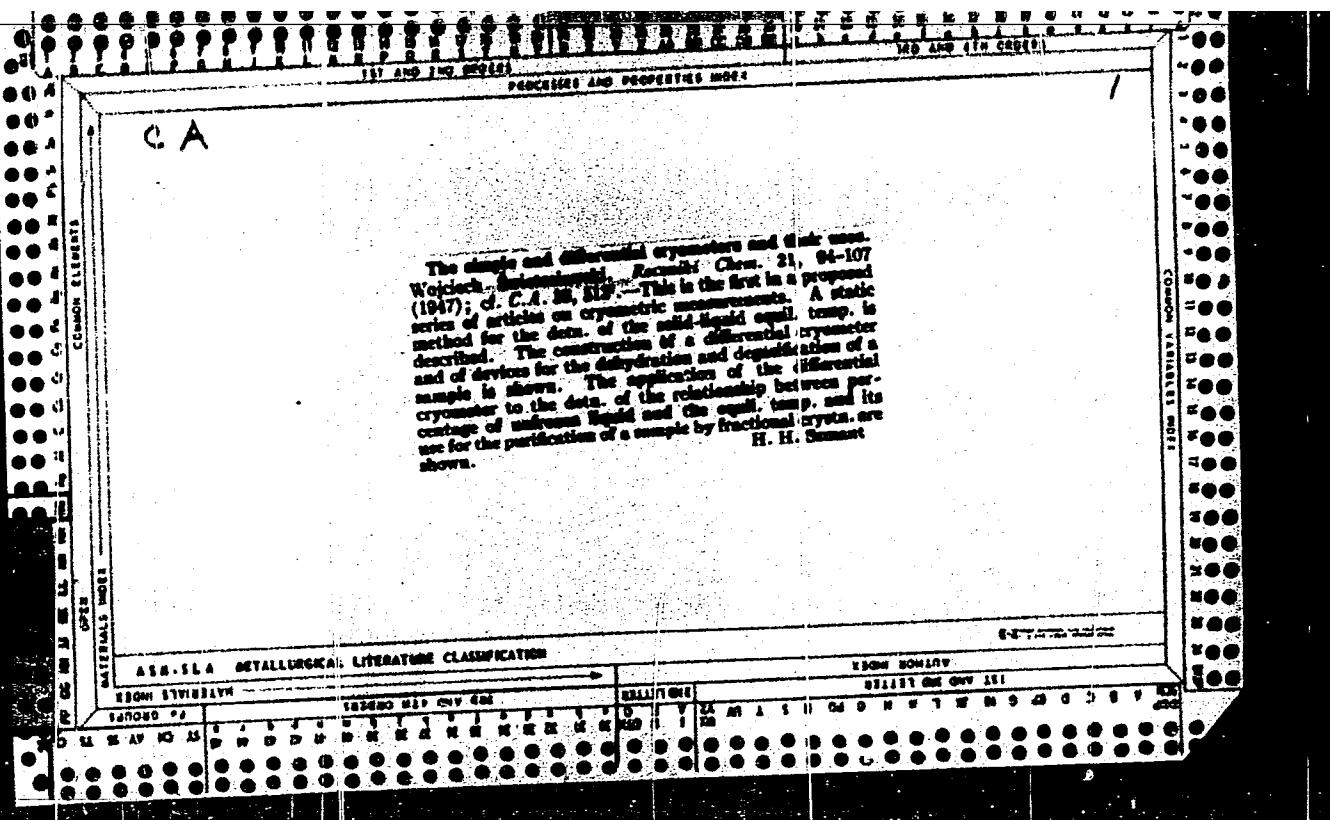
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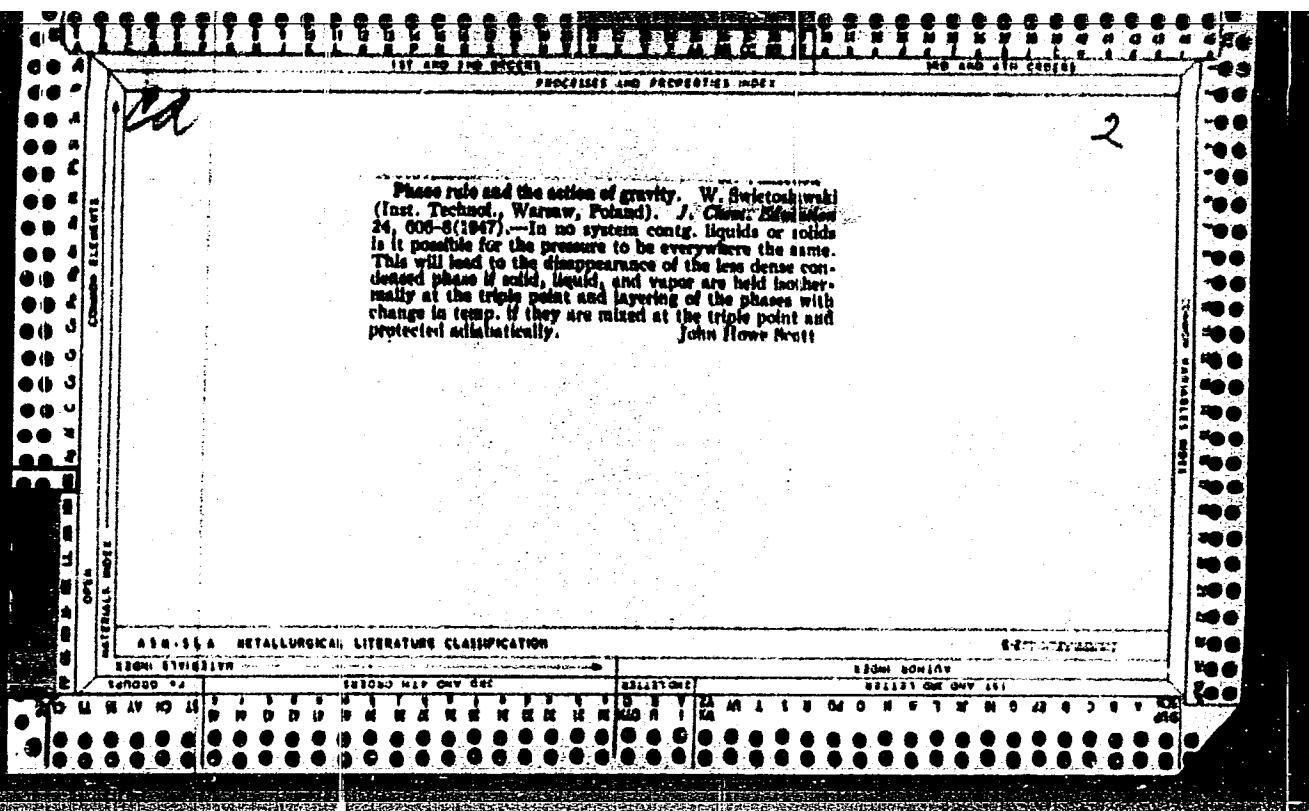


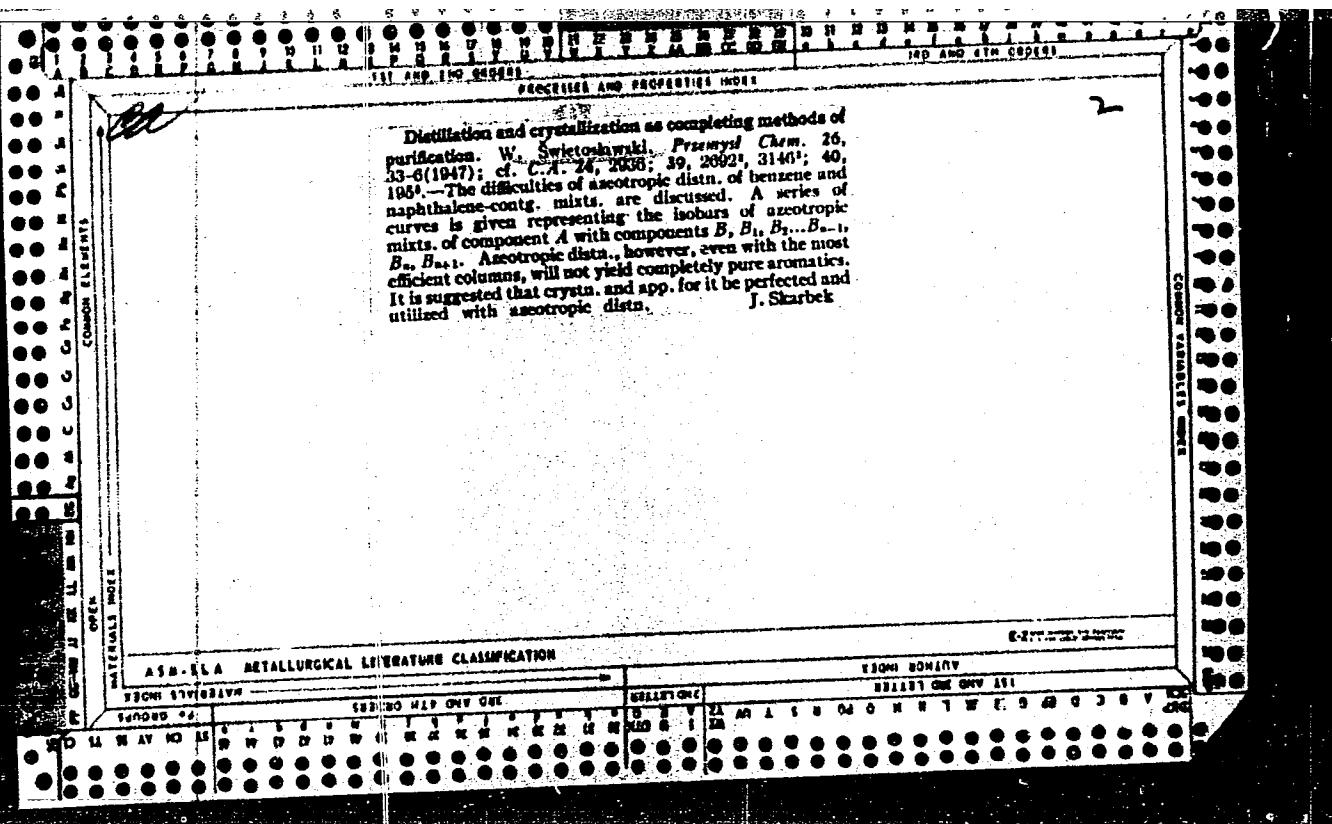


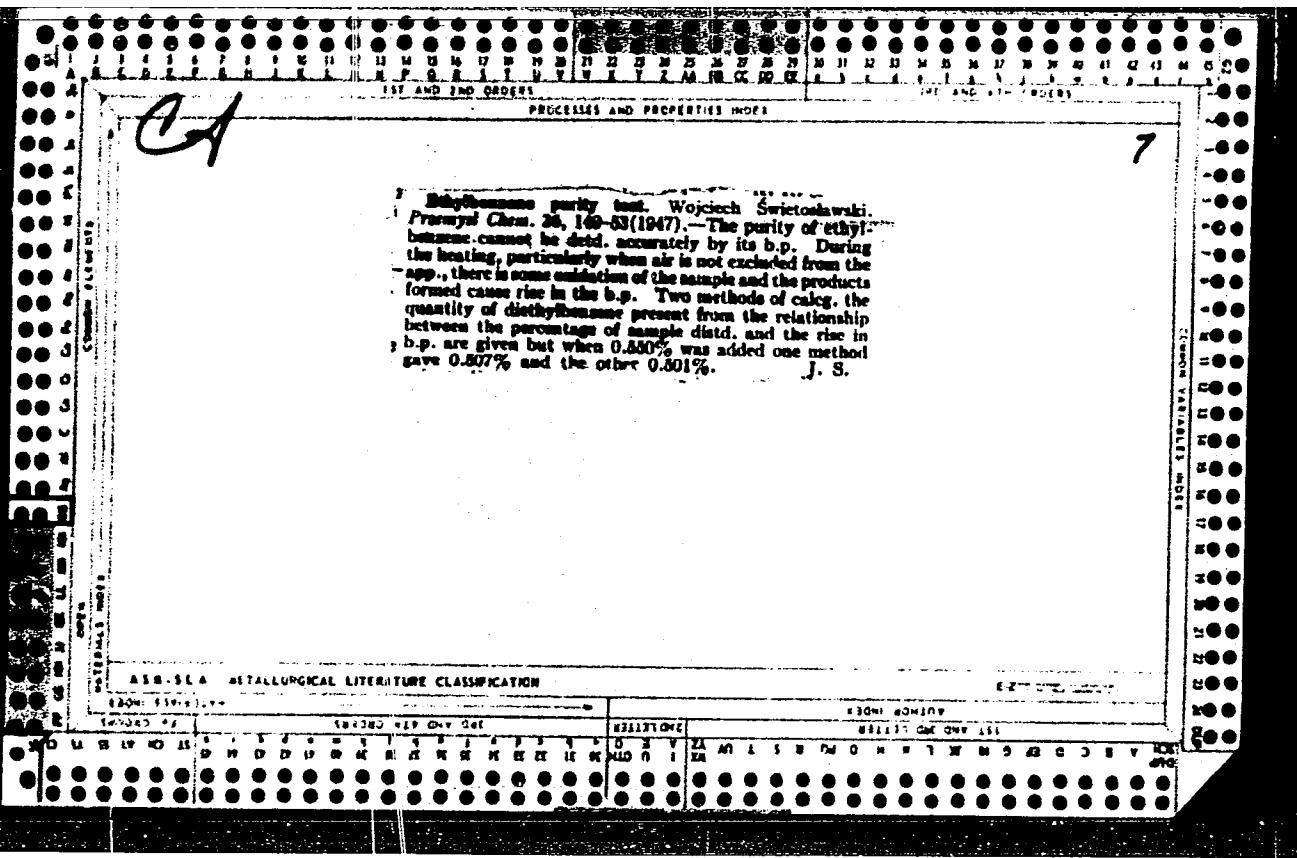


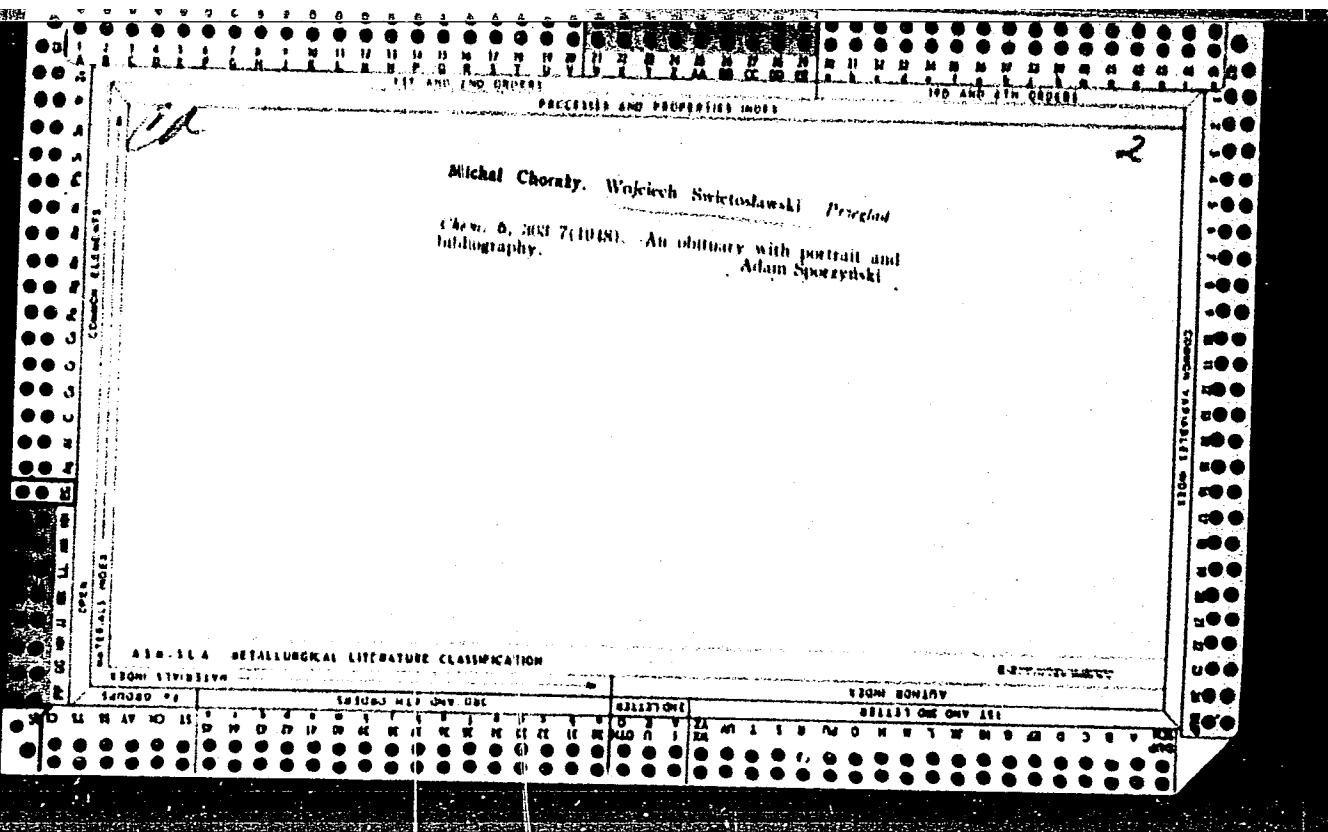


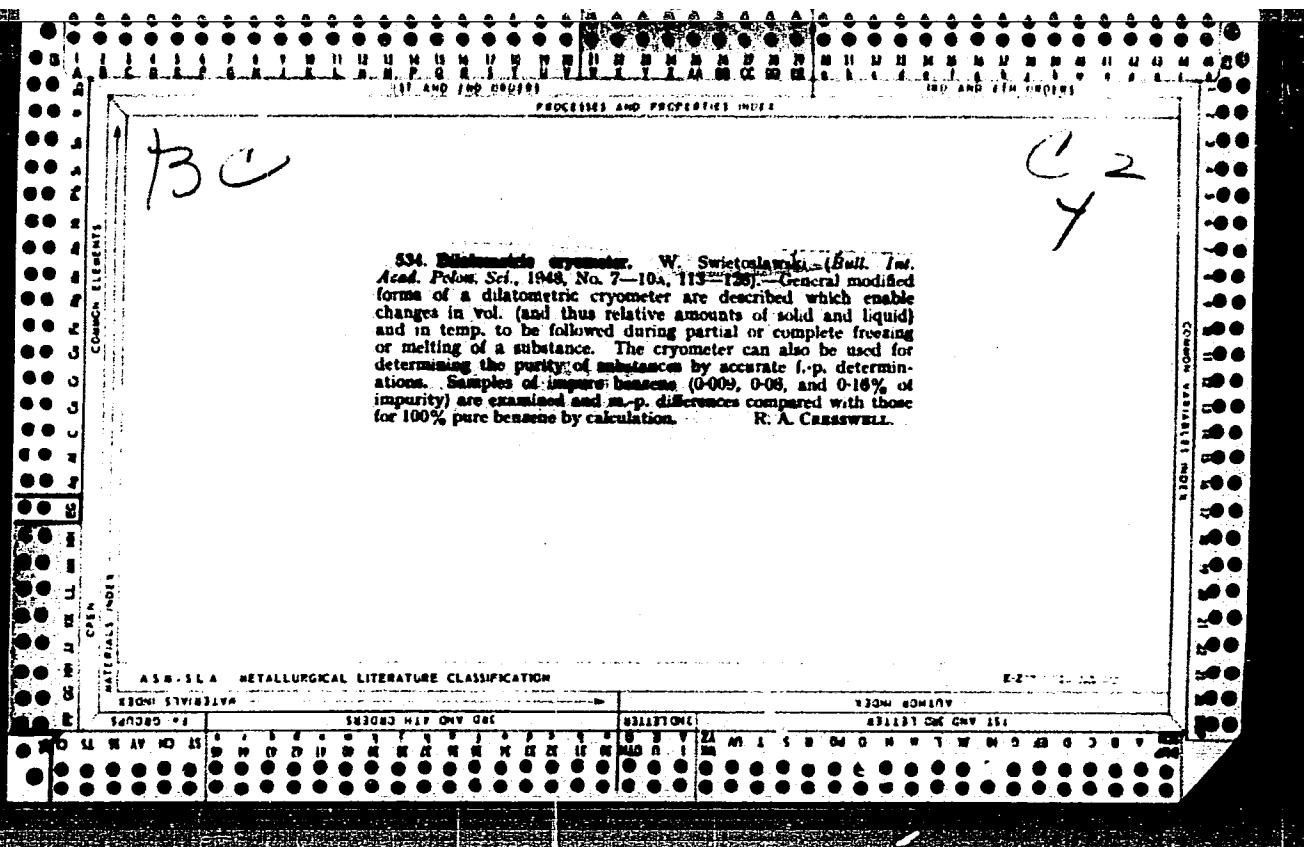


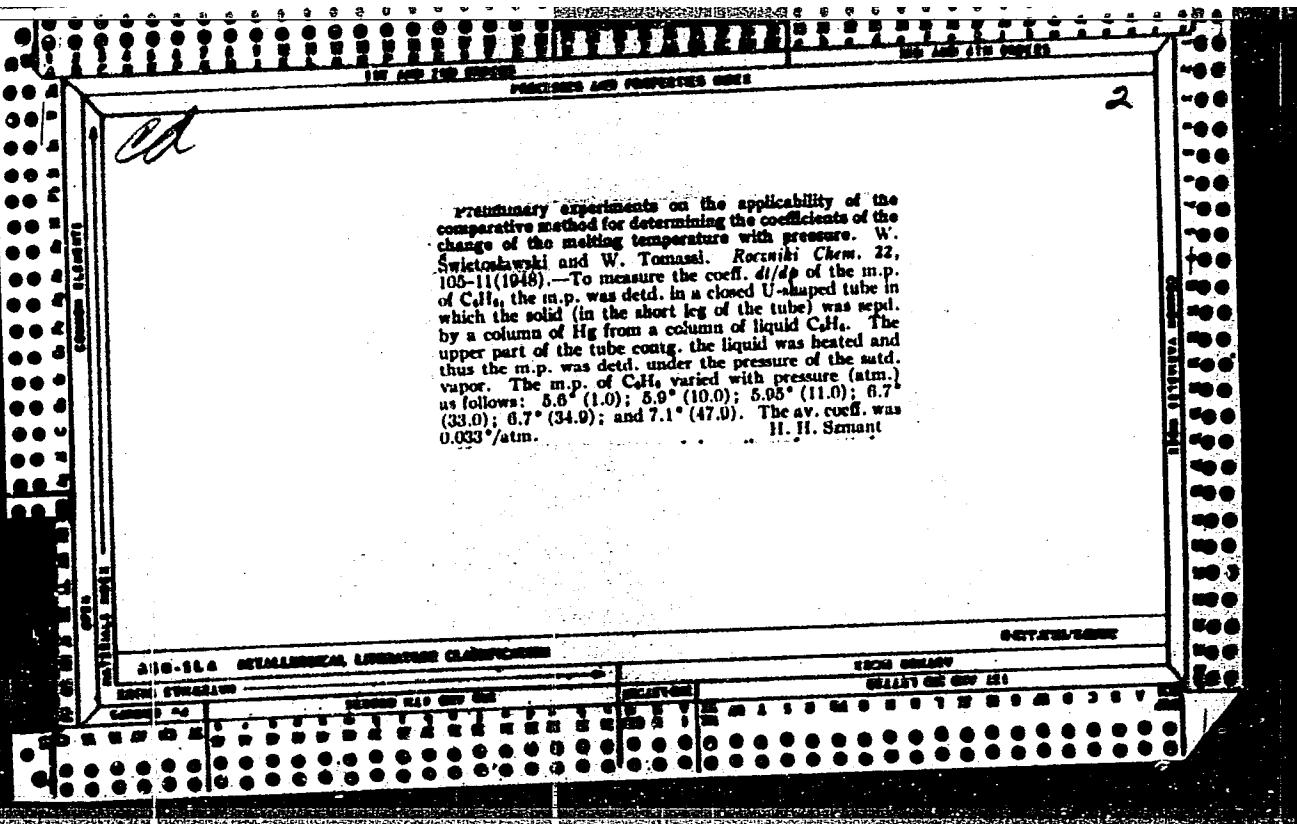


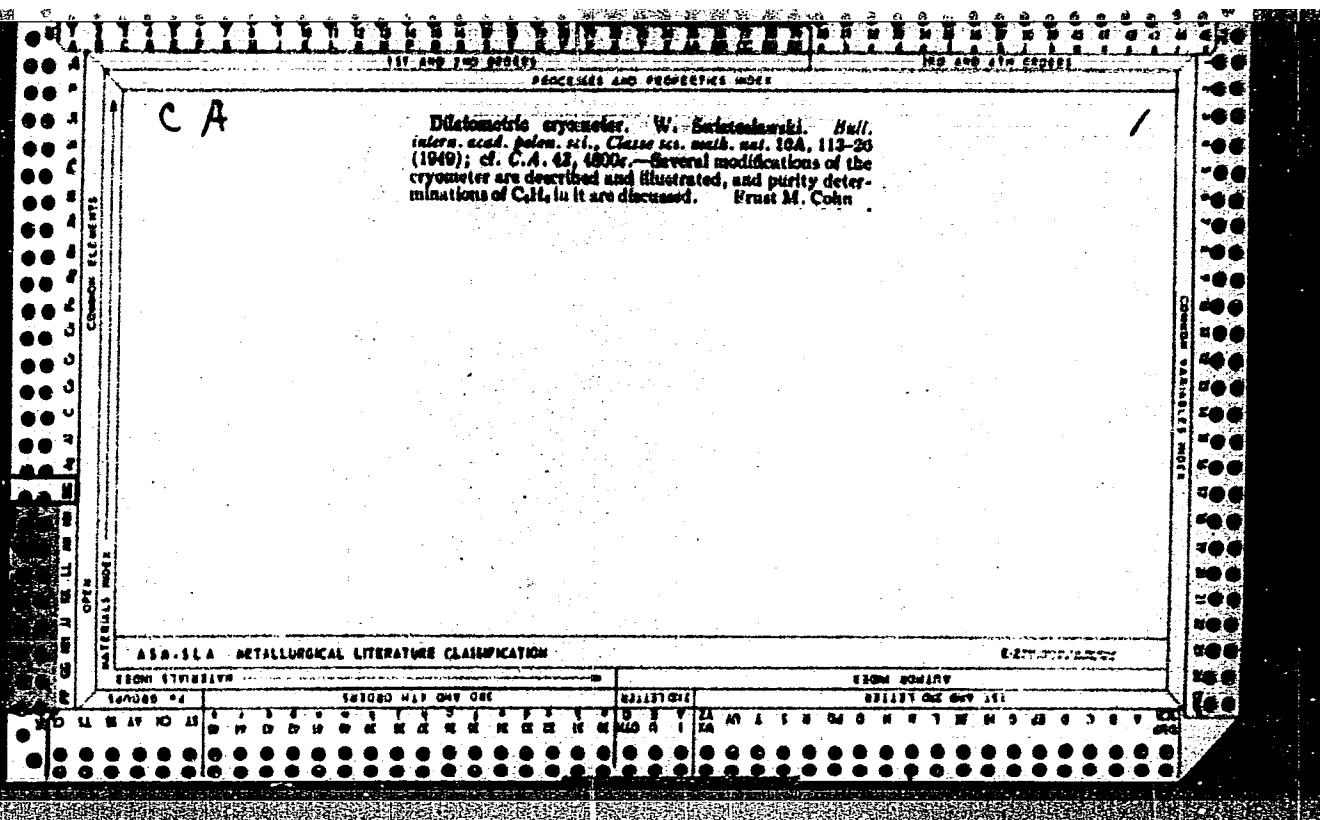


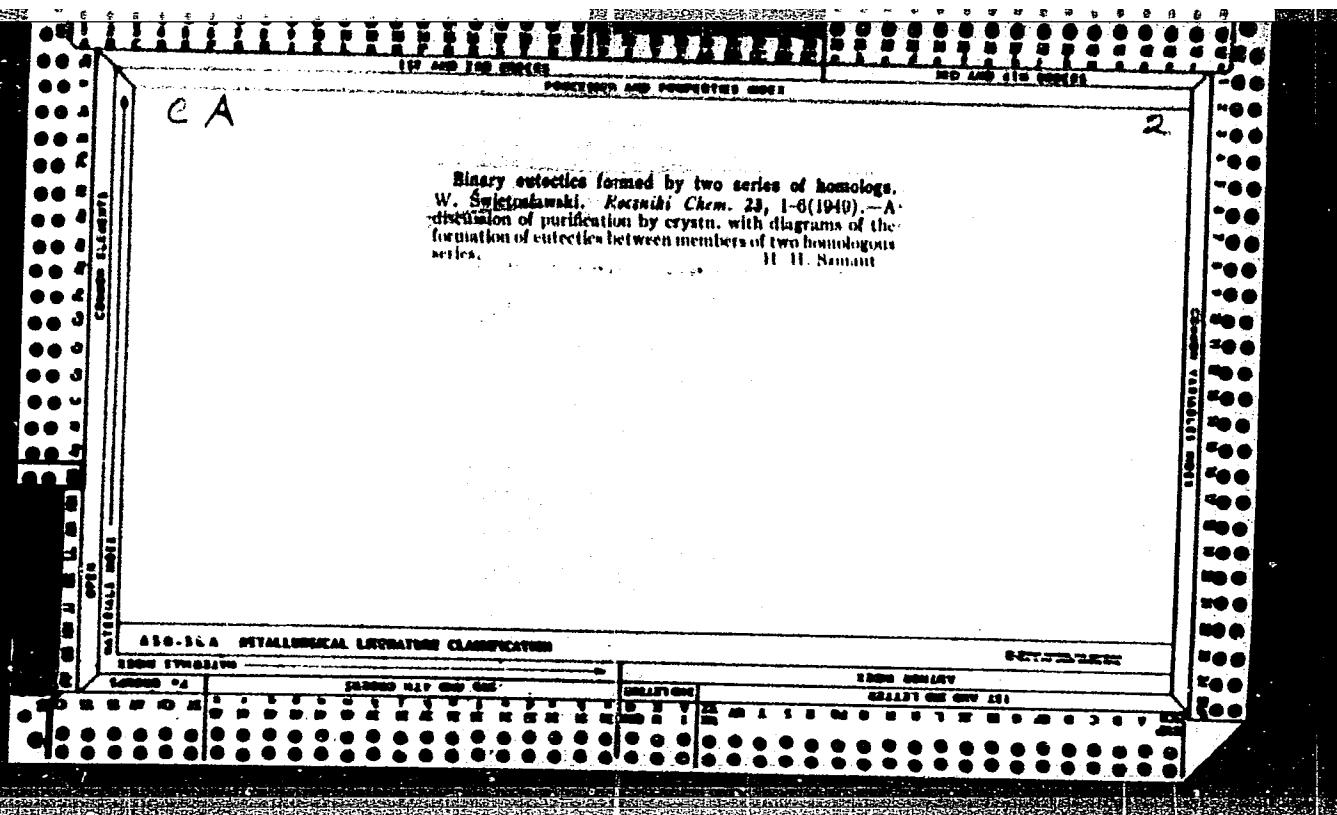


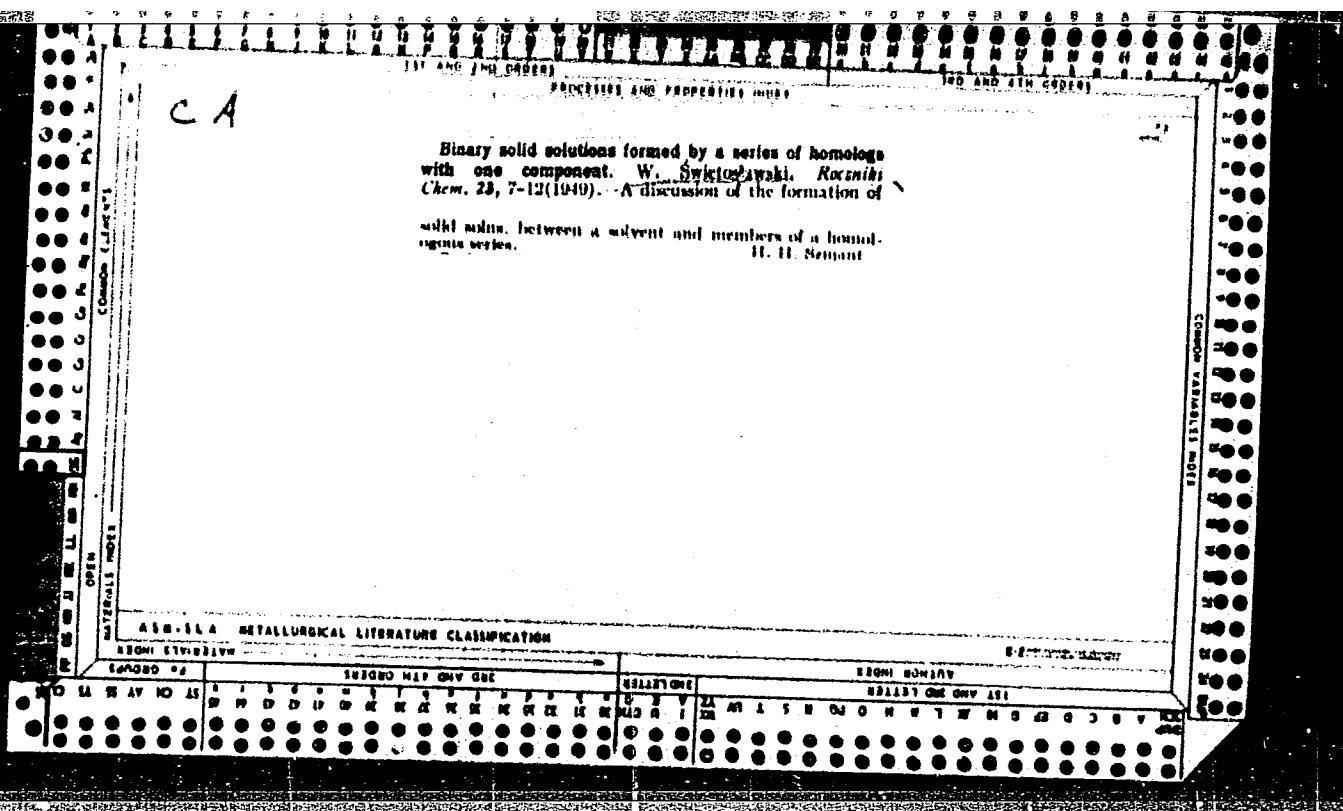












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The quaternary azeotrope $\text{n-heptane-benzene-ethanol-water}$, I. W. Świątowski and K. Zieborak (Central Inst. Ind. Chem. Research, Warsaw). *Bull. intern. acad. polon. sci., Classe sci. math., et nat. Ser. A.* 1950, 9-12 (in English).—The quaternary azeotrope, $\text{C}_7\text{H}_{16}(\text{I})\text{C}_6\text{H}_6(\text{II})\text{CH}_3\text{OH}(\text{III})\text{H}_2\text{O}(\text{IV})$, b. 64.79°, contained 62.4 I, 12.1 II, 18.7 III, and 6.8 wt.-% IV and consisted of 2 phases: the lower, $d_4^{20} 0.8772$, $n_D^{20} 1.3789$, was 17.2 vol.-% or 17.85 wt.-% at 20° of the total and contained 11.8 I, 0.9 II, 54.4 III, and 32.9 wt.-% IV; the upper, $d_4^{20} 0.8385$, $n_D^{20} 1.4640$, contained 73.5 I, 14.5 II, 11.0 III, and 1.0 wt.-% IV. The quaternary azeotrope was detd. by filling a differential ebulliometer with the lower-boiling ternary azeotrope (I-III-IV) and adding small amts. of the higher-boiling ternary azeotrope (II-III-IV), detg. the boiling and condensation temp., and plotting against the compn. of the mixt. The quaternary azeotrope was also prepd. by distn. II. The quaternary azeotrope benzene-ethanol-water-isooctane. *Ibid.* 13-14.—The quaternary azeotrope, I-isooctane (V)-III-IV, b. 64.69°, contained 61.4 I, 14.1 V, 17.7 III, and 6.7 wt.-% IV and consisted of 2 phases: the lower, $d_4^{20} 0.8766$, $n_D^{20} 1.3782$, was 17.0 vol.-% or 17.80 wt.-% of the total at 20° and contained 11.5 I, 1.2 V, 54.6 III, and 32.7 wt.-% IV; the upper, $d_4^{20} 0.8203$, $n_D^{20} 1.4595$, contained 72.3 I, 17.0 V, 9.9 III, and 0.9 wt.-% IV. III. The quaternary azeotrope composed of benzene, ethanol, water, and cyclohexane. K. Zieborak. *Ibid.* 15-18.—The quaternary azeotrope, I-III-IV-cyclohexane (VI), b. 62.19°, contained 34.0 VI, 21.5 I, 17.4 III, and 7.1 wt.-% IV. IV. Tangent and nearly tangent isobars limiting the formation of two-, three-, and four component azeotropes. W. Świątowski. *Ibid.* 19-26.—By use of the isobar curves of an azeotropic agent, A, with a series of homologs, B_1 , B_2 , B_3 , ..., B_n (cf. *Ebulliometric Measurements*, 1945, p. 115 (C.A. 39, 2692²)).

the azeotropic range is defined as the extreme b.p. limits of the corresponding homologs which form tangent or nearly tangent isobars (i.e., the upper and lower limits of azeotropy). The formation of ternary azeotropes of A and C with a series of homologs, B, B_1 , B_2 , etc., or their isomers, depends upon the smaller azeotropic range of A with B's and C with B's, although the ternary azeotrope range may be somewhat larger than the smaller binary azeotrope range by virtue of the nearly tangent isobars of the binary system. The formation of quaternary azeotropes is limited by the azeotropic capacity of the binary systems (A with B's having the smallest range; all 3 agents (A, C, and D) should form azeotropes with each other and with the series of homologs (B, B_1 , B_2 , etc.) within certain range; the quaternary azeotrope range may be somewhat larger than the smallest binary range by virtue of nearly tangent isobars of the binary system. In a similar manner, it is concluded that a 5-component azeotrope might exist, although the probability of such formation is small, and its isolation would be difficult since the azeotropic depression with respect to the low-

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est-boiling quaternary azeotrope would be small. V.
Nearly tangent zeotropes and their influence on the formation of ternary and quaternary azeotropes and zeotropes.
W. Świetosławski. *Ibid.* 29-33.—In the distn. of I with a small amt. of hydrocarbons, b. 93-100°, the temp. vs. compn. curve has one section corresponding to the formation of nearly tangent binary azeotropes, a transition point from nearly tangent azeotropes to nearly tangent zeotropes, and a section representing the distn. of the zeotropes. If to the ternary azeotrope, I-III-IV, b. 64-85°, is added gasoline (contg. mostly isomeric heptanes and octanes), b. 83-100°, distn. will yield the quaternary azeotrope and the ternary azeotrope, and a somewhat similar distn. curve is obtained. Thus, there is a similarity between the distn. of binary tangent and nearly tangent azeotropes and zeotropes and the distn. of a complicated polycOMPONENT system. The following rule was deduced: If substance B forms with 1 part of a homologous series nearly tangent azeotropes and with another nearly tangent zeotrope, the addn. of a 3rd or 4th azeotropic component leads to the formation of ternary or quaternary azeotropes, resp., whose boiling-temps. differ slightly from each other. These mixts. of ternary or quaternary azeotropes or zeotropes cannot be sep'd. by practical distn. Also in *Roczniki Chem.* 25, 88-113(1951).

Herman Skolnik

Swietoslawski W.

Swietoslawski W. "On the Classification of Sorbents and Ion-Exchangers." (W sprawie klasyfikacji sorbentow i jonitow). Przemysl Chemiczny, No. 1, 1950, pp. 41-43.

The author suggests a classification of sorbents and ion-exchangers into: perfect and imperfect groups. To the first belong all sorbents and ionites with one single function, while the other comports those which, in addition to being sorbents also play the part of ionites and vice versa. A suggestion is made to divide ionites into one-, two-, three-, and multi-function groups. The swelling of ionites interferes to some degree with the proposed grouping. There follows a characterization of the secondary processes occurring on non-ideal sorbents and ion-exchangers. A number of Polish terms are proposed for practical use.

SO: Polish Technical Abstracts - No. 2, 1951

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Classification of sorbents and ion exchangers. W. Swietoslawski, *Przegrod. Chem.*, 6, (29), 41-8 (1950). A classification of sorbents and ion exchangers is suggested which divides them into two groups: ionic and nonionic sorbents and ionites (ion exchangers). All sorbents and ionites which are characterized by one function only (i.e., sorbents possess adsorption capacity and ionites the ability of ion exchange) are classified in the first group. On the other hand, the nonionic sorbents comprise those which possess either acidic or basic groups or have them absorbed or adsorbed. In both cases the sorbents take part in the ion-exchange process. The ionites may possess the ability of adsorption or absorption of mols. from the soln. and therefore may act as ion exchangers as well as sorbents. It is suggested that the phenomena of swelling of ionites and of some sorbents (analog. with the absorption of relatively large quantities of H_2O) does not interfere with the proposed classification. If sorption of other mols. in addn. to the solvent takes place, the nonionic nature should be stressed. The term chromatography should be retained, though selective adsorption is a more reasonable term. It is suggested that the ionite is in equil. with the soln. when the compn. of the effluent is the same as that of the influent.

Frank Gouet

P.T.B.

Chemistry and Chemical Technology

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541.12.017.3 : 541.123.61

Gwalejowski W., Zieborak K. Quaternary Azeotrope Composed of
Ethanol-Benzene-Water and Normal Heptane.

"O azotropie czteroskładnikowym utworzonym z benzyną, etanolu, wody i n-heptanem". Przemysł Chemiczny, No. 7-8, 1950,
pp. 420, 2 tabs.

Quaternary azeotrope composed of ethanol-benzene-water and
normal heptane has been obtained. It has been characterized by
boiling temperature 64.78°C and by the following percentage weight
composition: benzene 62.4, ethanol 18.7, water 6.8 and normal heptane

12.1. Composition, densities and the refractive indexes of both
the lower and the upper phases are given. The percentage volume of
the lower phase at 20°C is 17.2, which corresponds to 17.85 percent
of the percentage weight.

P.T.A.

Chemistry & Chemical Technology

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Kwietonawski W., Zieglerak K. Quaternary Azeotrope Composed of
Benzene-Ethanol-Water and Isooctane.

"O azotropie esterokladiennikowej utworzonej z benzyną, etanolu, wodą i benzyną", Przemysł Chemiczny No 7 - II, 1950, pp. 420-421,
2 tabs.

The existence of the quaternary heteroazeotrope composed of benzene — ethanol — water and Isooctane (2,2,4 — trimethyl-pentane) has been demonstrated. The boiling point of the heteroazeotrope at one atmosphere 44.6°C, and the percentages weight composition are as follows: benzene 61.5%, ethanol 17.7%, water 6.7% and Isooctane 14.1%. The densities and the refractive indexes of both the liquids have also been determined.